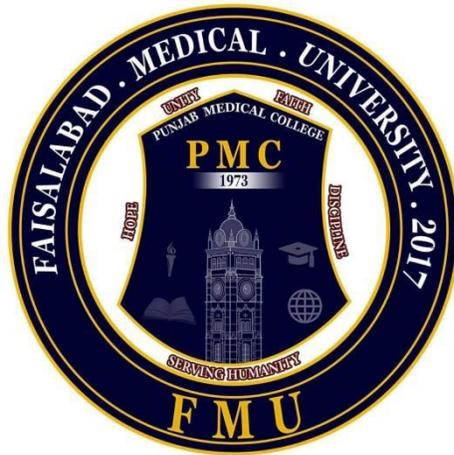


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CURRICULUM/ STATUTES/ REGULATIONS  
FOR  
4 YEARS MS OPHTHALMOLOGY

*Faisalabad Medical University*  
*Faisalabad*

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**Section A:****Vision Statement:**

Faisalabad Medical University has been established since 05-05-2017 for purpose of imparting better medical education and encouraging and arranging extensive research and publication in the field of medical science. The vision of university is:

*“Striving to achieve national and international stature in undergraduate and postgraduate medical education with strong emphasis on professionalism, leadership, community health services, research and bioethics”*

**Mission Statement:**

The mission of university is:

*“Educate Healthcare professionals to prevent,diagnose and treat human illnesses to practice evidence-basedmedicine with focus on lifelong healthcare in order to meet the challenges of community needs and competitive medical profession at the same time”*

**Statutes:****Nomenclature:**

The name of degree programme shall be MS Ophthalmology

**Course Title:**

MS Ophthalmology

**Training Centres:**

Eye Unit 1, Allied 1 Hospital Faisalabad

Eye Unit 2, Allied 2 Hospital Faisalabad

**Duration of Course:**

The duration of course shall be four (4) years with structured training in a recognized department under the guidance of an approved supervisor.

**Course Structure:**

- **Core knowledge:** Competency based learning for trainees. 2 exams to be conducted by university at mid and end of Programme. Structural internal exam to be included throughout the Programme which is conducted by the department. At the end of 1st year and 3rd year, structural internal assessment to be conducted by department which will carry weightage in final assessment.
- **Clinical Training in respective specialty.**
- **Research and Thesis writing:** In Research Component and thesis writing, the synopsis is to be submitted in 1- year period and must be completed before the end of 3 years. Without thesis defense, the candidate will not be allowed to sit in final assessment.
- **Mandatory Workshops:** Mandatory Workshops throughout the course of programme will be conducted. The basic workshops will be attended by all trainees from all specialties and will be evenly distributed throughout the course:
  1. Communication skills
  2. Research synopsis and thesis writing skills
  3. Basic Biostatistics and Research Methodology
  4. Information Technology Skills
  5. ILS

At the end of each workshop, assessment will be done regarding the workshop and certificates will be issued to passing trainees only. The workshops will be conducted by the University and will be paid as in all post-graduate programmes and supervised by the department of Medical Education, FMU, Faisalabad. The trained certified coaches/teachers will be invited and they will get incentive from the university. All the interested trainers will contact the department for inclusion in trainers list. Feedback of the facilitators will be recorded for the continuation of the process. Medical education department will issue yearly planner for these workshops in the light of curriculum document. University will certify it.

For specialties) The course is structured in three parts:

**Part I:** Candidate will start his/her training in (ophthalmology) department from 1<sup>st</sup> day till 6 months. Candidate will gain basic knowledge of the selected specialty i.e., anatomy, physiology and orientation to the subject, basic principles, history taking and case presentation, inpatient and out-patient care. During this time the candidate will select a topic for synopsis, complete his/her synopsis and will attend the mandatory workshops.

**Part II:** From 6 months till 1year, he/she will do a rotational training in Surgery & Allied.

The candidate shall undertake clinical training on fundamental concepts of General Surgery & Allied

- General Surgery for 02 Months
- Plastic Surgery for 01 Month
- Neurosurgery for 01 Month
- Radiology and Radiotherapy for 01 Month
- Community ophthalmology for 01 Month

The clinical training in Ophthalmology shall be rejoined from 1st year onwards in Ophthalmology Department. During Part-II, the candidate must submit the synopsis for approval. At the end of 2<sup>nd</sup> year, the Intermediate examination shall be held in ophthalmology.

**Part III** is structured for 3<sup>rd</sup>, 4<sup>th</sup> calendar years in MS Ophthalmology. The candidate shall undergo training to achieve educational objectives of in MS Ophthalmology.

## **Section B:**

### **Admission Criteria:**

Admission to the programme will be twice a year via Punjab Residency Programme according to the central induction policy.

### **Registration and Enrollment:**

The number of PG Trainees/ Students and Beds to trainee ratio at the approved teaching site will be as per policy of Pakistan Medical & Dental Council The University will approve supervisors for MS/MD courses. Candidates selected for the courses after their selection and enrollment shall be registered with FMU as per prescribed Registration Regulation.

### **Accreditation Related Issues Of The Institution:**

- **Faculty:**

Properly qualified teaching staff in accordance with the requirements of Pakistan Medical and Dental Council (PMDC). Supervisors will be decided by the university according to the set standards and rules.

- **Adequate resources:**

The university will provide adequate resources Including class-rooms (with audiovisual aids), demonstration rooms, computer lab, clinical pathology lab, theaters, instruments and other equipment etc. for proper Training of the residents as per their course outcomes and objectives.

- **Library:**

Departmental library should have latest editions of recommended books, reference books and latest journals (National and International)

### **Freezing of Program & leave rules**

- Freezing of training, Maternity Leave, Ex-Pakistan Leave etc. would be allocated through the office of Dean Postgraduate to the competent authority.

## **Section C:**

### **Aims & Objectives of the Course**

#### **Aim:**

The aim of four years MS programme in ophthalmology is to train residents to acquire the competency of a specialist in the relevant field so that they can become good clinicians, teachers, researchers and community health provider in their specialty after completion of their training according to the global standards.

#### **Learning Objectives:**

##### **General Objective:**

The objective of four years MS Programme in Ophthalmology is to train residents to acquire the competency of a specialist in the field so that they can become competent clinicians, good teachers and researchers in their specialty to provide eye care at secondary and tertiary level health care institutions after completion of their training.

##### **Specific Learning Outcomes**

The specific training component would be targeted for establishing clearly defined standards of knowledge and skills required to practice Ophthalmology at secondary and tertiary care level with proficiency in the Basic and applied clinical sciences and management of Emergency eye problems either medically or surgically.

#### **MS Ophthalmology training should enable a student to:**

##### **Access and apply relevant knowledge to clinical practice to:**

Apply scientific knowledge in practice appropriate to patient need and context.

Recognize the clinical features, accurately diagnose and manage ophthalmic problems

Formulate a well-reasoned provisional diagnosis and management plan based on a thorough history and examination

Formulate a differential diagnosis based on investigative findings

Manage patients in ways keeping in mind their physical, social, cultural and psychological needs

Recognize disorders of the eye and related structures and differentiate those amenable to surgical treatment

Effectively manage the care of patients with eye trauma including multiple system trauma

Effectively recognize and manage complications of different eye diseases

Accurately identify the benefits, risks and mechanisms of action of current and evolving treatment modalities

Indicate alternatives in the process of interpreting investigations and in decision-making

Consider all issues relevant to the patient

Assess and implement a risk management plan

**Safely and effectively perform appropriate surgical procedures:**

- Consistently demonstrate sound surgical skills
- Demonstrate procedural knowledge and technical skill at a level appropriate to the level of training
- Demonstrate manual dexterity required to carry out procedures
- Adapt their skills in the context of each patient and procedure
- Maintain and acquire new skills
- Approach and carries out procedures with due attention to safety of patient, self and others
- Critically analyze their own clinical performance for continuous improvement
- Critically evaluate new technology Design and implement effective management plans.

Communicate effectively:

- Communicate appropriate information to patients (and their family) about procedures, potentialities and risks associated with surgery in ways that encourage their participation in informed decision making
- Communicate with the patient (and their family) the treatment options including benefits and risks of each
- Communicate with and co-ordinate health management teams to achieve an optimal surgical environment
- Initiate the resolution of misunderstandings or disputes
- Modify communication to accommodate cultural and linguistic sensitivities of the patient

**Recognize the value of knowledge and research and its application to clinical practice:**

- Assume responsibility for self-directed learning
- Critically appraise new trends in Ophthalmology
- Facilitate the learning of others.

**Appreciate ethical issues associated with Ophthalmology:**

- Consistently apply ethical principles
- Identify ethical expectations that impact on medico-legal issues

- Recognize the current legal aspects of informed consent and confidentiality
- Be accountable for the management of their patients.

**Professionalism by:**

- Employing a critically reflective approach to Ophthalmology
- Adhering with current regulations concerning workplace harassment
- Regularly carrying out self and peer reviewed audit
- Acknowledging and have insight into their own limitations
- Acknowledging and learning from mistakes

**Work in collaboration with members of an interdisciplinary team where appropriate:**

- Collaborate with other professionals in the selection and use of various types of treatments assessing and weighing the indications and contraindications associated with each type
- Develop a care plan for a patient in collaboration with members of an interdisciplinary team
- Employ a consultative approach with colleagues and other professionals
- Recognize the need to refer patients to other professionals

**Management and Leadership**

- Effective use of resources to balance patient care and system resources
- Identify and differentiate between system resources and patient needs
- Prioritize needs and demands dealing with limited system resources.
- Manage and lead clinical teams
- Recognize the importance of different types of expertise which contribute to the effective functioning of clinical team.
- Maintain clinically relevant and accurate contemporaneous records

**Health advocacy:**

- Promote health maintenance of patients
- Advocate for appropriate health resource allocation
- Promote health maintenance of colleagues and teacher

**CONTENT LIST****Year 1**

Sr No.	Outcomes	Contents Covered	Teaching and Learning Methods	Setting
A		Basic and Clinical Ophthalmology		IPD/OPD
1.	To be able to understand the various structures present in eye, their relationship to each other and their role in functions of the eye.	Anatomy <ul style="list-style-type: none"> <li>• Frontal Eye Fields</li> <li>• 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 6<sup>th</sup> cranial nerves</li> <li>• Supranuclear Gaze Pathways</li> <li>• Ophthalmic Division of trigeminal nerve</li> <li>• The Orbit</li> <li>• The Eye Ball</li> <li>• Extra Ocular Muscles</li> <li>• Lacrimal Apparatus</li> <li>• Eye Lids</li> <li>• Visual Pathway</li> </ul>	Small Group Teaching	IPD/OPD
2.	To know the functions of different parts of the eye as well as mechanisms controlling these functions.	Physiology <ul style="list-style-type: none"> <li>• Lacrimal System</li> <li>• Cornea and Sclera</li> <li>• Lens</li> <li>• Vitreous</li> <li>• Aqueous Humor production, drainage and IOP</li> <li>• Retinal Physiology and phototransduction</li> <li>• Blood Ocular Barrier</li> <li>• Accomodation</li> <li>• Pupil</li> <li>• Light and Dark Adaptation</li> <li>• Color Vision</li> <li>• Electrophysiology</li> <li>• Visual Fields</li> <li>• Eye movements and stereopsis</li> </ul>	Small Group Teaching + Patient Based Teaching	IPD/OPD
3.	To know the various cellular processes and chemical reactions involved in visual	Biochemistry & Cell Biology	Small Group Teaching	IPD/OPD

	function, as well as maintaining the normal physiology of eye.			
4.	to be able to understanding of the characteristics and etiology of various disease processes affecting the eye.	<b>Pathology</b> <ul style="list-style-type: none"> <li>• Inflammation</li> <li>• Thrombosis and embolism</li> <li>• Neoplasia</li> <li>• Graft Rejection</li> <li>• Basic Ocular Pathology</li> </ul>	Small Group Teaching	IPD/OPD
5.	To be able to describe the normal changes in the eye ball with age.	Growth and Senescence	Small Group Teaching	IPD/OPD
6.	To be able to understand the physics of light, laws of reflection and refraction controlling the formation and focusing of the image on the eye as well as the uses of lenses and other related equipments.	<b>Optics</b> <ol style="list-style-type: none"> <li>1. Physical Optics</li> <li>2. Geometric Optics <ul style="list-style-type: none"> <li>• Refraction</li> <li>• Reflection</li> <li>• Prisms</li> <li>• Spherical Lenses</li> <li>• Astigmatic Lenses</li> <li>• Notation of Lenses</li> <li>• Aberration of Lenses</li> </ul> </li> </ol>	Small Group Teaching + Patient Based Learning	IPD/OPD
7.	To be able to recognize the surgical instruments used in operation theatre, their names as well as uses in various kinds of surgeries.	Instruments	Operation Theatre Based Learning	IPD/OPD

## Year 2

Sr. No.	Outcome	Contents Covered	Teaching and Learning Methods	Setting
A.		Basic and Clinical Ophthalmology		
1.	<ul style="list-style-type: none"> <li>To understand the physics behind various kinds of refractive errors and how they can be corrected, as well as other related abnormalities.</li> <li>To be able to diagnose the kind of refractive error using retinoscopy, autorefractometer and trial set and prescribe appropriate spectacles.</li> </ul>	Optics and Refraction 1. Clinical Optics <ul style="list-style-type: none"> <li>Optics of the Eye</li> <li>Ametropia</li> <li>Accommodative Problems</li> <li>Refractive Errors</li> <li>Correction of Ametropia</li> <li>Low Vision Aids</li> </ul> 2. Clinical Refraction 3. Instruments	Patient Based Teaching	IPD/OPD
2.	To have a complete knowledge of the various kinds of diseases related to eye lids, as well as their management.	Eye Lids <ul style="list-style-type: none"> <li>Allergic Disorders</li> <li>Infections</li> <li>Benign Lesions and Cysts</li> <li>Malignant Tumors</li> <li>Entropion</li> <li>Ectropion</li> <li>Ptosis</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/OPD
3..	<ul style="list-style-type: none"> <li>To have a complete knowledge of the mentioned diseases related to the lacrimal system as well as investigations and treatment related to them.</li> <li>To be able to differentiate between epiphora and lacrimation.</li> </ul>	Lacrimal System <ul style="list-style-type: none"> <li>Evaluation of Lacrimation</li> <li>Evaluation of Epiphora</li> <li>Management of Watery Eye</li> <li>Management of Dry Eye</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/OPD

4.	To have a complete knowledge of the mentioned diseases related to the conjunctiva as well as investigations and treatment related to them.	<b>Conjunctiva</b> <ul style="list-style-type: none"> <li>• Infections</li> <li>• Allergic Inflammation</li> <li>• Mucocutaneous Disorders</li> <li>• Degenerations</li> <li>• Benign Lesions</li> <li>• Malignant Lesions</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/OPD
5,	<ul style="list-style-type: none"> <li>• To have a basic knowledge of various corneal pathologies and diagnose them.</li> <li>• To know the various types of corneal transplant operations as well as its indications and contraindications.</li> <li>• Have a basic knowledge of the different kinds of refractive procedures.</li> </ul>	<b>Cornea</b> <ul style="list-style-type: none"> <li>• Keratitis</li> <li>• Degenerations</li> <li>• Dystrophies</li> <li>• Ectasias</li> <li>• Drug Induced Disorders</li> <li>• Metabolic Disorders</li> <li>• Keratoplasty</li> <li>• PRK</li> <li>• LASEK</li> <li>• LASIK</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/OPD
6.	To diagnose scleritis/ episcleritis as well as differentiate scleritis from episcleritis.	<b>Sclera</b> <ul style="list-style-type: none"> <li>• Scleritis</li> <li>• Episcleritis</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/OPD
7.	To be able to diagnose cataract, as well as identify the stage as well as type of cataract.	<b>Lens</b> <ul style="list-style-type: none"> <li>• Classification of Cataract`</li> <li>• Congenital Cataract</li> <li>• Acquired Cataract</li> <li>• Management of Cataract</li> <li>• Ectopia lentis</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/OPD
8.	<ul style="list-style-type: none"> <li>• To have a complete knowledge of the glaucoma and its types.</li> <li>• Know the difference</li> </ul>	<b>Glaucoma</b> <ul style="list-style-type: none"> <li>• Evaluation of glaucoma patient, techniques and tests</li> <li>• Primary Glaucomas</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/OPD

	<p>between glaucoma and intraocular hypertension.</p> <ul style="list-style-type: none"> <li>• Various investigations related to glaucoma and their interpretation.</li> </ul>	<ul style="list-style-type: none"> <li>• Secondary Glaucomas</li> <li>• Congenital Glaucoma</li> <li>• Medical Management of Glaucoma</li> <li>• Surgical Management of Glaucoma</li> <li>• Lasers in Glaucoma</li> </ul>		
9.	To know the different kinds of uveitis, their management as well as proper counselling of the patient regarding the treatment, prognosis and follow up.	<p>Uveal Tract</p> <ul style="list-style-type: none"> <li>• Idiopathic Uveitis</li> <li>• Uveitis associated with systemic disorders</li> <li>• Management of uveitis</li> <li>• Uveal tumors</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/OPD
10.	<ul style="list-style-type: none"> <li>• To be able to diagnose various kinds of retinal disorders.</li> <li>• Know the different kinds of laser treatment available as well as their role.</li> <li>• To be able to diagnose and grade diabetic and hypertensive retinopathy.</li> </ul>	<p>Retina</p> <ul style="list-style-type: none"> <li>• Retinal detachment</li> <li>• Congenital and acquired macular disorders; an overview</li> <li>• Retinal vascular disorders; diabetic retinopathy and hypertensive retinopathy</li> <li>• Lasers in retinal disorders</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/OPD
11.	To have a complete knowledge of the kinds of strabismus, how to diagnose them and how to treat them.	<p>Strabismus</p> <ul style="list-style-type: none"> <li>• Amblyopia and its management</li> <li>• Evaluation of strabismus</li> <li>• Eso and Exo deviations</li> <li>• Principles of surgery</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/OPD
12.	To have a complete knowledge of the mentioned diseases	<p>Orbit</p> <ul style="list-style-type: none"> <li>• Thyroid eye disease</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/OPD

	related to the conjunctiva as well as investigations and treatment related to them.	<ul style="list-style-type: none"> <li>• Infections / Inflammations</li> <li>• Vascular malformations</li> <li>• Tumors</li> <li>• Blow out fracture of the orbit</li> </ul>		
13.	<ul style="list-style-type: none"> <li>• To know the various kinds of neuro-ophthalmological abnormalities as well as their systemic and ocular significance.</li> <li>• Know various kinds of pupil abnormalities and diagnose the site of lesion.</li> <li>• Know the abnormalities associated with different cranial nerves related to eye.</li> </ul>	<p>Neuro-ophthalmology</p> <ul style="list-style-type: none"> <li>• Optic nerve and its abnormalities</li> <li>• Pupil normal control and abnormalities</li> <li>• Cranial nerves associated with eye</li> <li>• Visual pathway and its abnormalities</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD
14.	To have a complete skill and knowledge about the management of ocular trauma.	<p>Ocular Trauma</p> <ul style="list-style-type: none"> <li>• Trauma to ocular surface</li> <li>• Blunt trauma</li> <li>• Penetrating trauma</li> <li>• Intraocular foreign body</li> <li>• Trauma to eyelids and adnexa</li> </ul>	Patient Based Teaching/ Small Group Teaching	Emergency/ Operation Theatre

**Relevant skills required by the end of 2<sup>nd</sup> year before Mid-Term Examination:**

**Patient Management Skills:**

- Elicit a pertinent history
- Communicate effectively with patients, families and the health team (observed).
- Perform a physical examination.
- Order appropriate investigations.
- Interpret the results of investigations.
- Assess fitness to undergo surgery.
- Decide and implement appropriate treatment.
- Postoperative management and monitoring.

- Maintain accurate and appropriate records

**Pre-Operative Preparation:**

- Able to make and manage the list of patients for operations.
- Carry out the necessary pre-operative examination and investigations of patients prior to surgery.
- Calculate the Intraocular lens power with the help of A-Scan and Keratometer, both pre-operatively and per operatively.

**Per-Operative Skills:**

- Position the patient appropriately for surgery.
- Focusing of the microscope and setting the IPD accordingly.
- Ensuring appropriate anti-septic techniques.

**Examination Skills:**

Visual Assessment and Refraction:

- Visual functions
- Visual acuity
- Color vision,
- Contrast sensitivity,
- Visual Field (confrontation tests),
- Retinoscopy Streak,
- Subjective refraction,
- Cross cylinder,
- Measurement of IPD,
- Measurement of BVD,
- Spectacle prescription,
- Duochrome test,
- Worth four dot test,
- Maddox rod test,
- Maddox wing test,
- Cycloplegic refraction,
- Accommodative power,
- AC/A ratio

Cover/Uncover test

Ptosis Assessment

Slit Lamp Examinations

Applanation and Non-Contact Tonometry

Gonioscopy

Pachymetry

Fundus Examination:

- Direct ophthalmoscopy
- Fundus contact lens/ 90D / 78D

Focimetry

Automated refractometer

Visual field (Bjerrum's screen, Goldman, perimetry, automated perimetry)

Ultrasound Examination (A/B scan Biometry)

Corneal topography/ keratometry Orbscan/ Specular microscopy,

Low vision aids,

Anterior segment photography,

Fundus photography,  
 FFA/ICGA,  
 OCT/HRT,  
 TNO,  
 Titmus tests

**Laser Skills:**

Yag Laser Capsulotomy  
 Yag laser Iridotomy

**Use of Operation Theatre Equipment:**

Operating microscope, functions and focusing.

**Anesthesia Skills:**

General Anesthesia; Ocular Associations and Complications  
 Local Anesthesia related to eye (topical, peri-bulbar, retro-bulbar)

**Surgical Skills:**

Minor Surgery:

- Removal of sutures
- Removal of FB
- Removal of concretion
- Incision and curettage of Meibomian cyst
- Electrolysis of trichiasis, Tarsorrhaphy
- Conjunctival flap surgery
- Cyst removal from ocular surface
- Pterygium excision

Lid and Lacrimal System:

- Ptosis surgery
- entropion
- ectropion
- Enucleation
- implant
- evisceration
- Irrigation of lacrimal passages
- Lacrimal probing
- Dacryocysto rhinostomy

Cornea:

- Bandage Contact Lens
- Amniotic Membrane Grafting

Cataract:

- Extra Capsular Cataract Surgery

Vitreo-Retinal:

- Intra Vitreal Injections

Trauma:

- Lid tear repair with or without cut canaliculus
- Corneal Tear Repair
- Limbal Tear Repair
- Scleral Tear Repair
- Hyphema Wash

## Year 3

Sr. No	Outcomes	Contents Covered	Teaching and Learning Methods	Setting
		Basic & Clinical Ophthalmology		
1.	<ul style="list-style-type: none"> <li>To have a complete knowledge of the various kinds of diseases related to eye lids, as well as their management.</li> <li>Know the various surgical procedures related to eye.</li> </ul>	Eye Lids <ul style="list-style-type: none"> <li>Immune Related Inflammations</li> <li>Lash Disorders</li> <li>Tumors and Relations with Skin Diseases</li> <li>Congenital Malformations</li> <li>Surgical Procedures</li> </ul>	Patient Based Teaching/ Small Group Teaching	OPD
2.	<ul style="list-style-type: none"> <li>To have a complete knowledge of the various kinds of diseases related to conjunctiva, as well as their management.</li> <li>Surgical management of pterygium and other conjunctival pathologies.</li> </ul>	Conjunctiva <ul style="list-style-type: none"> <li>Pterygium</li> <li>Pigmented Lesions</li> <li>Pinguicula</li> </ul>	Patient Based Teaching/ Small Group Teaching	OPD
3.	To have a complete knowledge of the various kinds of diseases related to sclera, as well as their management. Systemic association of scleral diseases.	Episclera & Sclera <ul style="list-style-type: none"> <li>Immune Mediated Scleritis</li> <li>Scleral Discolouration</li> <li>Porphyria</li> </ul>	Patient Based Teaching/ Small Group Teaching	OPD
4.	<ul style="list-style-type: none"> <li>To diagnose different sites of blockage in lacrimal system.</li> <li>Surgical treatment of congenital and acquired nasolacrimal duct obstruction.</li> </ul>	Lacrimal Apparatus <ul style="list-style-type: none"> <li>Congenital Nasolacrimal Duct Obstruction</li> <li>Acquired Nasolacrimal Duct Obstruction</li> <li>Canaliculitis</li> <li>Acute &amp; Chronic</li> </ul>	Patient Based Teaching/ Small Group Teaching	OPD/ OT

		<p>Dacrocystitis</p> <ul style="list-style-type: none"> <li>• Surgical Procedures</li> </ul>		
5.	<ul style="list-style-type: none"> <li>• Perform and interpret pachymetry and corneal topography.</li> <li>• Know the difference between various kinds of available corneal scans.</li> </ul>	<p>Cornea</p> <ul style="list-style-type: none"> <li>• Corneal Transparency, edema and vascularization</li> <li>• Investigations relating to cornea</li> <li>• Corneal Opacity</li> </ul>	<p>Patient Based Teaching/ Small Group Teaching</p>	<p>OPD/IPD</p>
6.	<ul style="list-style-type: none"> <li>• To diagnose the different kinds of cataract.</li> <li>• Pre operative preparation of cataract surgery.</li> <li>• Complications of cataract surgery and their management.</li> </ul>	<p>Lens</p> <ul style="list-style-type: none"> <li>• Classifications and Etiology of Cataract</li> <li>• Various kinds of cataract surgeries</li> <li>• Ectopia Lentis and it's management</li> <li>• Complications of cataract surgery</li> <li>• Preoperative evaluation of cataract patient</li> <li>• Biometry</li> </ul>	<p>Patient Based Teaching/ Small Group Teaching</p>	<p>IPD/OT</p>
7.	<ul style="list-style-type: none"> <li>• To be able to diagnose, investigate and manage various kinds of glaucoma.</li> <li>• Different kinds of glaucoma surgeries and their indications.</li> </ul>	<p>Glaucoma</p> <ul style="list-style-type: none"> <li>• Intraocular hypertension</li> <li>• Secondary Glaucomas</li> <li>• Management of various kinds of glaucomas</li> <li>• Investigations relating to glaucoma including Visual Field, &amp; OCT.</li> </ul>	<p>Patient Based Teaching/ Small Group Teaching</p>	<p>IPD/ OPD</p>
8.	<ul style="list-style-type: none"> <li>• To be able to diagnose and manage different kinds of uveitis.</li> <li>• Systemic disease associations of</li> </ul>	<p>Uveal Tract</p> <ul style="list-style-type: none"> <li>• Classification of Uveitis</li> <li>• Fuch's Uveitis</li> <li>• Sympathetic Uveitis</li> </ul>	<p>Patient Based Teaching/ Small Group Teaching</p>	<p>IPD</p>

	uveitis and their diagnosis.	<ul style="list-style-type: none"> <li>• Intermediate Uveitis</li> <li>• Lens Induced Uveitis</li> </ul>		
9.	To diagnose various kinds of retinal disease. To be able to interpret different kinds of investigations related to retina including OCT, FFA and ICGA.	<p>Vitreous and Retina</p> <ul style="list-style-type: none"> <li>• Retinal Detachment (Primary, Exudative and Tractional Detachment)</li> <li>• Peripheral Retinal Degenerations</li> <li>• PVD and Breaks</li> <li>• Retinal Vascular Diseases</li> <li>• Hereditary Retinal Disorders</li> <li>• Acquired Macular Disorders</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/ OT
10.	<ul style="list-style-type: none"> <li>• To be able to diagnose and manage optic neuritis.</li> <li>• Diagnose the site of lesion in visual pathway.</li> <li>• Different kinds of headaches related to ocular pathologies and ocular associations of migraine.</li> </ul>	<p>Neuro-Ophthalmology</p> <ul style="list-style-type: none"> <li>• Optic Neuritis</li> <li>• Optic Atrophy</li> <li>• Visual field defects due to lesions in the visual pathway and cortex</li> <li>• Nystagmus</li> <li>• Supra nuclear disorders of ocular motility</li> <li>• Headache and Migraine</li> <li>• Imaging techniques</li> <li>• Papilloedema</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/ OPD
11.	To be able to completely manage deviation of eyes from diagnosing the type of squint to planning the type of surgery and post operative follow-up, independently.	<p>Strabismus</p> <ul style="list-style-type: none"> <li>• Clinical Evaluation of Deviation - Phoria and Tropia</li> <li>• Alphabet Patterns</li> <li>• Paralytic and Non-paralytic Squint</li> <li>• Duane Syndrome</li> <li>• Brown Syndrome</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/ OT/ Diagnostics

		<ul style="list-style-type: none"> <li>• Strabismus Fixus</li> <li>• Monocular Elevation Syndrome</li> </ul>		
12.	<ul style="list-style-type: none"> <li>• Know the different pathologies related to orbit.</li> <li>• Interpret orbit CT and MRI scans.</li> <li>• Diagnose proptosis and its various causes.</li> </ul>	<b>Orbit</b> <ul style="list-style-type: none"> <li>• Congenital Malformations</li> <li>• Non-Infective inflammatory conditions</li> <li>• Proptosis</li> <li>• Investigations</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/ OT/ Emergency
13.	Diagnose and appropriately manage various kinds of ocular traumas.	<b>Trauma</b> <ul style="list-style-type: none"> <li>• Chemical Injuries</li> <li>• Thermal Burns</li> <li>• Diagnosis of Injuries</li> <li>• Management of Injuries</li> <li>• Surgical Procedures of Injuries</li> </ul>	Patient Based Teaching/ Small Group Teaching	Emergency
14.	To know the indications and contraindications as well as the procedure to apply the lasers.	<b>Ophthalmic Lasers</b> <ul style="list-style-type: none"> <li>• Nd:Yag Laser</li> <li>• Argon</li> <li>• Diode and Eximer Laser</li> <li>• Carbon Dioxide Lasers</li> <li>• Collagen Cross Linkage (CXL)</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD
15.	to Know ocular manifestations of various systemic disorders as well as their treatment.	<b>Ocular Management of systemic disorders</b> <ul style="list-style-type: none"> <li>• Vascular disorders</li> <li>• Metabolic disorders</li> <li>• Endocrine disorders</li> <li>• Infective disorders</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/ OPD

## Year 4

Sr. No.	Outcomes	Contents	Teaching and Learning Methods	Setting
		<b>Basic and Clinical Ophthalmology</b>		
1.	<ul style="list-style-type: none"> <li>To be able to completely diagnose and manage corneal disease.</li> <li>To have a complete understanding of corneal prostheses as well as corneal grafts.</li> </ul>	<b>Cornea</b> <ul style="list-style-type: none"> <li>Dry Eye Syndrome</li> <li>Contact Lenses</li> <li>Corneal Prostheses</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/ OPD
2.	To know the various kinds of intra ocular lenses including multi focal lenses and toric lenses.	<b>Lens</b> <ul style="list-style-type: none"> <li>Types and uses of intraocular lenses</li> <li>Abnormalities of lens shape</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/ OT
3.	To have a complete understanding of the various surgical techniques related to glaucoma.	<b>Glaucoma</b> <ul style="list-style-type: none"> <li>Various kinds of tonometry techniques.</li> <li>Surgical Procedures and complications.</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/ OT
4.	<ul style="list-style-type: none"> <li>To be able to diagnose different kinds of uveitis and manage accordingly.</li> <li>Use a multidisciplinary approach in management of uveitis related to systemic diseases.</li> </ul>	<b>Uveal Tract</b> <ul style="list-style-type: none"> <li>Sarcoidosis</li> <li>Behcet Disease</li> <li>Infective and Non-Infective Uveitis</li> <li>Idiopathic Chorioretinopathies</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD
5.	To be able to diagnose different retinal pathologies and plan their treatment	<b>Vitreous and Retina</b> <ul style="list-style-type: none"> <li>Vitreous Opacities</li> <li>Interpretation of various investigations including</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/ OT

	<p>accordingly. To be able to plan PRP, Barrage lasers, PPV and other vitreo-retinal surgeons under supervision.</p>	<p>OCT and FFA.</p> <ul style="list-style-type: none"> <li>• Radiation Retinopathy</li> <li>• Retinal Surgical Procedures</li> </ul>		
6.	<p>To have a complete understanding of various neurological conditions related to eye and their management.</p>	<p><b>Neuro-Ophthalmology</b></p> <ul style="list-style-type: none"> <li>• Ocular myopathies</li> <li>• Blepharospasm</li> <li>• Hemifacial spasm</li> <li>• Facial Dystonias</li> <li>• Phacomatosis</li> <li>• Oculomotor, Trochlear, Trigeminal, Abducent and Cranial Nerve Palsies</li> </ul>	<p>Patient Based Teaching/ Small Group Teaching</p>	<p>IPD</p>
7.	<p>To be able to administer botulinum toxin independently.</p>	<p><b>Strabismus</b></p> <ul style="list-style-type: none"> <li>• Botulinum Toxin Chemodenervation</li> <li>• Squint Surgery and Complications of Squint Surgery</li> </ul>	<p>Patient Based Teaching/ Small Group Teaching</p>	<p>IPD/ OT</p>
8.	<p>Have a complete knowledge of various kinds of surgical procedures related to orbit.</p>	<p><b>Orbit</b></p> <ul style="list-style-type: none"> <li>• Surgical Procedures</li> </ul>	<p>Patient Based Teaching/ Small Group Teaching</p>	<p>IPD</p>
9.	<ul style="list-style-type: none"> <li>• To be able to diagnose, investigate and plan management of various ocular tumors.</li> <li>• To be able to diagnose the systemic complications of ocular tumors and refer accordingly.</li> </ul>	<p><b>Ocular Tumors</b></p> <ul style="list-style-type: none"> <li>• Benign Epibulbar Tumor and Ocular Surface Neoplasia</li> <li>• Iris and Ciliary Body Growths</li> <li>• Melanoma</li> <li>• Retinoblastoma and Other Retinal Tumors</li> <li>• Retinal Vascular Tumors</li> <li>• Primary Intraocular Lymphoma</li> <li>• Metastatic Tumors Involving Eye and Orbit</li> </ul>	<p>Patient Based Teaching/ Small Group Teaching</p>	<p>IPD</p>
10.	<p>To be able to involve a multidisciplinary approach in the management of various systemic</p>	<p><b>Systemic Diseases associated with Eye</b></p> <ul style="list-style-type: none"> <li>• Diabetes Mellitus</li> <li>• Hypertension</li> <li>• Thyroid Ophthalmopathy</li> </ul>	<p>Patient Based Teaching/ Small Group Teaching</p>	<p>IPD/ OPD</p>

	diseases associated with ocular manifestations.	<ul style="list-style-type: none"> <li>• Collagen Vascular Disorders</li> <li>• Osteoarthropathies</li> <li>• Ocular Manifestations of Vitamin A deficiency</li> <li>• Tuberculosis</li> <li>• Sarcoidosis</li> </ul>		
11.	<ul style="list-style-type: none"> <li>• To be able to administer drugs according to the patients' disease.</li> <li>• Know the absolute and relative contra indications of ocular drugs in various kinds of systemic diseases and conditions.</li> <li>• Know the systemic side effects of various ocular drugs.</li> </ul>	<p>Pharmacology and Therapeutics</p> <ul style="list-style-type: none"> <li>• Ocular Antibiotics</li> <li>• Anti-Viral</li> <li>• Anti-Fungal</li> <li>• Steroids</li> <li>• Immunosuppressants</li> <li>• Anti VEGF</li> <li>• Antimetabolites (Mitomycin C and 5-flouracil)</li> <li>• Ocular and Periocular Anesthetics</li> <li>• Anti-Glaucoma Drugs</li> <li>• Fluorescein Dye</li> <li>• Mydriatic Cycloplegic</li> <li>• Miotics</li> <li>• Ophthalmic Side Effects of Systemic Medications</li> </ul>	Patient Based Teaching/ Small Group Teaching	OPD/ IPD
12.	<ul style="list-style-type: none"> <li>• To be able to label a person as blind according to the international definition.</li> <li>• Prescribe low vision aids.</li> </ul>	<p>Community Ophthalmology and Blindness</p> <ul style="list-style-type: none"> <li>• Definition</li> <li>• Common Causes</li> <li>• Standards of Blindness</li> <li>• Prevention Strategies</li> <li>• Low Vision Aids</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD/ Community
13.	To be able to know the various kinds of congenital eye diseases.	<p>Paediatric Ophthalmology</p> <ul style="list-style-type: none"> <li>• Congenital Glaucoma</li> <li>• Paediatric Cataract</li> <li>• Paediatric Tumor Syndromes</li> </ul>	Patient Based Teaching/ Small Group Teaching	IPD

**Relevant Skills to be required by the end of 4<sup>th</sup> year of training before final examination:**

**Examination Skills:**

Squint Examination:

- Orthoptic Assesment
- Prism Bar Test

- Prism Cover Test
- Forced Duction Test

Fundus Examination:

- Indirect Ophthalmoscopy

Lasers Application:

- Pan Retinal Photocoagulation
- Barrage Laser

### **Surgical Skills:**

Lid and Lacrimal System:

- Excision of papillomas / cysts from lids
- Cyst excision from ocular surface
- Pterygium excision with autograft
- Lid Tumor Excision and reconstruction
- Exenteration
- Lacrimal probing and irrigation
- Punctal surgery

Strabismus:

- Horizontal Muscle Surgery
- Vertical Muscle Surgery
- Adjustable sutures
- Administration of Botox

Cornea:

- Keratoplasty

Cataract:

- Phacoemulsification
- Lens Aspiration
- Anterior Vitrectomy

Glaucoma:

- Trabeculectomy
- Trabeculectomy
- Surgical Iridectomy
- Implantation of valvular devices(Assistant Status)

Vitreo-Retinal:

- Scleral Buckling
- Pars Plana Vitrectomy (Assistant Status)

### **Rotations Detail**

#### Course Content

#### General Surgery:

<b>Outcomes</b>	<b>Content Covered</b>	<b>Teaching Techniques</b>	<b>Settings</b>
To learn basic management of trauma	Trauma	Emergency based learning	Surgical emergency
To take informed consent	Pre Operative Preparation	Small Group Teaching	IPD
To be able to know the preoperative assesment and baseline investigations	Pre Operative Preparation	Small Group Teaching	IPD

To take anesthesia fitness	Pre Operative Preparation	Small Group Teaching	IPD
Know about basic suturing skills	Trauma Management	Case Based Learning	Emergency
To learn about ABC in trauma management	Trauma Management	Case Based Learning	Emergency
To learn about post operative pain management	Post Operative Care	Case Based Learning	IPD
To learn about fluid management in shock	Shock	Case Based Learning	IPD/ Emergency
To know about sterilization techniques	Antiseptic measures	Small Group Learning	Operation Theatre
To know about donning and draping	Antiseptic Measures	Small Group Learning	Operation Theatre
To learn about per operative hemostasis	Hemostasis	Case Based Learning	Operation Theatre

Neurosurgery:

Outcomes	Content covered	Teaching techniques	Settings
To know the basic management of head injury in emergency	Head Injury	Case based learning	Emergency
<ul style="list-style-type: none"> <li>To be able to diagnose SAH</li> <li>To be able to diagnose Terson syndrome</li> </ul>	SAH	Case based learning	Emergency
Able to diagnose case of optic nerve glioma	Optic Nerve Glioma	Case based learning	IPD
Able to diagnose the optic nerve sheath meningioma	Optic Nerve Sheath Meningioma	Case based learning	IPD
Able to diagnose the case of space occupying lesion	Space occupying lesions	Case based learning	IPD
Able to diagnose the case of pituitary gland adenoma	Pituitary Gland Adenoma	Case based learning	IPD
Able to diagnose the case of craniopharyngioma	Craniopharyngioma	Case based learning	IPD
	Prolactinoma	Case based learning	IPD

Plastic Surgery

Able to do the surgery of entropion	Entropion	Operation Theatre Based Learning	OT
Able to do the surgery of ectropion surgery	Ectropion	Operation Theatre Based Learning	OT
Able to do the lid reconstruction surgery	Lid Reconstruction	Operation Theatre Based Learning	OT

Radiology

Able to know the basics of CT Scan	Basics of CT Scan	Small Group Teaching	Diagnostics
Able to know the basics of MRI	Basics of MRI	Small Group Teaching	Diagnostics
Able to interpret the CT scan of orbital cellulitis	Orbital Cellulitis	Small Group Teaching	Diagnostics
Able to interpret the CT scan of pseudo tumor cerebri	Pseudo tumor Cerebri	Small Group Teaching	Diagnostics
Able to interpret the MRI the case of retinoblastoma	Retinoblastoma	Small Group Teaching	Diagnostics
Able to interpret the findings of space occupying lesions on CT. Scan and MRI	Space Occupying Lesions	Small Group Teaching	Diagnostics
Able to interpret the blow out fractures on CT. Scan and MRI	Blow out fracture	Small Group Teaching	Diagnostics

Radiotherapy

Able to know the basics s of radiotherapy and application in cases of basal cell carcinoma	Basal Cell Carcinoma	Case based learning	OPD
Able to know the basics s of radiotherapy and application in cases of squamous cell carcinoma	Squamous Cell Carcinoma	Case based learning	OPD
Able to know the basics s of radiotherapy and application in cases of melanoma	Melanoma	Case based learning	OPD
Able to know the basics s of radiotherapy and chemotherapy application in cases of retinoblastoma	Retinoblastoma	Case based learning	IPD

**Section D:**  
**Programme Format:**

<b>Course Structure</b>	<b>Components</b>
<b>Part-I</b>	<p>Candidate will start his/her training in (ophthalmology) department from 1<sup>st</sup> day till 6 months. Candidate will gain basic knowledge of the selected specialty i.e., anatomy, physiology and orientation to the subject, basic principles, history taking and case presentation, inpatient and out-patient care. During this time the candidate will select a topic for synopsis, complete his/her synopsis and will attend the mandatory workshops.</p>
<b>Part II:</b>	<p>From 6 months till 1year, he/she will do a rotational training in Surgery &amp; Allied.</p> <p>The candidate shall undertake clinical training on fundamental concepts of General Surgery &amp; Allied</p> <ul style="list-style-type: none"> <li>• General Surgery for 02 Months</li> <li>• Plastic Surgery for 01 Month</li> <li>• Neurosurgery for 01 Month</li> <li>• Radiology and Radiotherapy for 01 Month</li> <li>• Community ophthalmology for 01 Month</li> </ul> <p>The clinical training in Ophthalmology shall be rejoined from 1<sup>st</sup> year onwards in Ophthalmology Department.</p> <p>During Part-II, the candidate must submit the synopsis for approval. At the end of 2<sup>nd</sup> year, the Intermediate examination shall be held in ophthalmology.</p>
<b>Part III</b>	<p><b>Clinical Components of Part-III</b></p> <p>is structured for 3<sup>rd</sup>, 4<sup>th</sup> calendar years in MS Ophthalmology. The candidate shall undergo training to achieve educational objectives of in MS Ophthalmology.</p> <p><b>Research components of Part-III</b></p> <p>Research &amp; Thesis writing:</p> <p>Research work or thesis writing project must be completed and submitted before the end of training</p>

## **Section E:**

### **Assessment Plan:**

Duration	Written Format	OSPE/ Clinical Format
At the end of First Year of Training	1. Revision of core MBBS component including basic and clinical components. 2. Basic knowledge and Acquiring skill related to the specialty according to the objectives made. 3. Synopsis submission.	Structured Internal assessment to be conducted by the department. This will include: a) Written. b) TOACS/OSCE  LOGBOOK and PORTFOLIO. These will be included in intermediate module exam as internal assessment
At the end of 2 <sup>nd</sup> Year of Training.	1. Advanced training of clinical knowledge and skill in specialty according to the objectives made. 2. Clinical Training with compulsory/ optional rotation in different specialties as required by the program. 3. First 2 mandatory Workshops as described in course outline. 4. Submission of synopsis  . Advanced level of training within specialty with emphasis on acquiring high level skills and competence in complex procedure as decide by the objectives.	Intermediate Examination: to be taken by university. It will include: a) Written=300 b) TOACS/OSPE =300 Total Marks =600  Structured Internal assessment to be conducted by the department. This will include: a) Written. b) TOACS/OSCE  LOGBOOK and PORTFOLIO.
At the end of 3 years of training	2. Thesis submission and evaluation OR 2 Papers published or in line of publication in a standard medical journal. 3. Advanced clinical training	

<p>At the end of 4 years of training</p>	<p>with compulsory/optional rotations in different departments as required by the program. 4. Workshops as described in course outline</p> <p>1. Training to act as an individual while managing patient or performing any task as defined by the objectives. 2. Training to act as a teacher, researcher, leader and a player in a team. 3. Overall development of a health care professional with all the set competencies of the Programme.</p>	<p>Final Examination to be conducted by university. It will include: a) Written=300 b) TOACS/OSPE/LONG CASE/SHORT CASE=300 c)Continuous internal assessment=100</p> <p>Thesis evaluation =300 Total marks=600+100+300=1000</p>
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### **Components of Intermediate Examination:**

Written: Total Marks: 300 marks

Clinical, TOACS/OSCE= 300 marks

Total: 600 marks

### **Components of Final Examination:**

Written: 300 Marks

Clinical, TOACS/OSCE & ORAL = 300 Marks

Continuous internal assessment =100 marks

Thesis Evaluation = 300 Marks

Total = 1000 Marks

### **Intermediate Examinations:**

Intermediate examination would be conducted for the candidate getting training, at the end of 2nd calendar year of the program.

### **Eligibility Criteria:**

- Candidate remained on institution roll during the period approved for appearing in examination
- Certificate of completion of mandatory workshops.

- Completion of Log book signed by supervisor/concerned Head of Department.
- Certificate of submission of Ethical Review Committee approved synopsis to the university if required as per rules of synopsis submission.
- Evidence of payment of examination fee as prescribed by the University from time to time.
- Certificates submitted through Principal/Dean/Head of academic institution shall be accepted as valid towards the candidature of an applicant.
- Submission of application for the examination and the conduct of examination.

#### **Intermediate Examination Schedule and Fee:**

- Intermediate Examination at completion of two years training, will be held twice a year.
- There will be a minimum period of 30 days between submission of application for the examination and the conduction of examination.
- Examination fee will be determined periodically by the University.
- The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
- The Controller of Examinations will issue Roll Number Slips on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee.

#### **Written Examination:**

The written examination will consist of 100 single best answer type Multiple Choice Questions. Each correct answer in the multiple-choice question paper will carry 02 marks. The short essay question will be clinical scenario or practice based, and each question will carry 10 marks. The marks of written exam will be divided as follows:

- MCQs (single best type) = 200 Marks
- SEQ (10 marks) =100

The candidates scoring 60% marks in multiple choice question paper and 60% in SEQ will pass the written examination and will then be eligible to appear in the clinical and oral examination.

#### **Clinical/TOACS/OSCE :**

The clinical and TOAC/OSCE examination will evaluate patient care competencies in detail, The examination will be of 300 total marks consisting of the following:

- Total Marks = 300
- TOACS/OSCE =300 marks
- Total 15 stations (20 marks each )

Each station will be of 10 minutes duration, 05 minutes will be for examining the patient and 05 minutes for discussion. The candidates scoring 60 % marks in each component of the Clinical and TOACs/OSCE & Oral will pass this part of the Intermediate Examination.

#### **Declaration of Results:**

- Passing criteria of clinical examination: "Individually Pass with 60% of each long cases, short cases & TOACS"
- A maximum total of four consecutive attempts (availed or un availed) will be allowed in the Intermediate Examination during which the candidate will be allowed to continue his training

program. If the candidate fails to pass his Intermediate Examination within the above mentioned limit of four attempts, candidates shall have to take entire examination including written examination again .

**Final Examination:** (at the end of 4<sup>th</sup> calendar year)

**Eligibility Criteria:**

- To appear in the Final Examination the candidate shall be required:
- Result card showing that the candidate has passed intermediate Examination.
- Certificate of completion of 4 Years training duly signed by Supervisor, Head of parent Department and that of the Head of Department where rotations were done (if prescribed in the curriculum).
- Evidence of thesis submission to Department of Examination of the University.
- Evidence of payment of examination fee as prescribed by the university from time to time.
- The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
- Candidate remained on institution roll during the period required for appearing in examination.
- Only those certificates, submitted through Principal/Dean/Head of academic institution shall be accepted.
- Final examination will be held twice a year i.e. at least six months apart.
- Examination fee will be determined and varied at periodic intervals by the University.
- The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
- The Controller of Examinations will issue an Admittance Card with a photograph of the candidate on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee. This card will also show the Roll Number, date / time and venue of examination.

**Written Part of Final Examination:**

There will be two written papers which will cover the whole syllabus of the specialty of training with total marks of 300, each paper having 150 marks. The written examination will consist of 100 single best answer type Multiple Choice Questions (MCQs), 2 marks each and 10 Short Essay Questions (SEQs). Each correct answer in the Multiple-Choice Question paper will carry 02 marks. Each Short Essay Question will carry 10 marks. The Total Marks of the Written Examination will be 300 and to be divided as follows:

- Multiple Choice Question paper Total Marks = 200
- Short Essay Question paper Total Marks = 100
- Total=300
- Paper 1 MCQs 100 (2marks each)
- Paper 2 SEQs 10 (10 marks each)

**Declaration of result:**

The candidates scoring 60% marks in aggregate of Paper 1 and Paper 2 of the written examination will be declared pass and will become eligible to appear in the Clinical Examination.

### **Clinical/ TOACS/ OSCE and Oral:**

The Clinical and Oral Examination will consist of 04 short cases, 01 long case and TOACs/OSCE & Oral with 01 station for a pair of Internal and External Examiner. Each short case will be of 10 minutes duration, 05 minutes will be for examining the patient and 05 minutes for discussion. Each long case will be of 30 minutes for examination and 30 minutes for discussion .

- The Total Marks of Clinical and TOACs/OSCE & Oral will be 500 and to be divided as follows:
- Short Cases (4) Total Marks = 200
- Long Case (1) Total Marks = 100
- TOACS/OSCE & ORAL Total Marks = 100
- Total= 300

### **Declaration of result:**

- Passing criteria of clinical examination (Individually Pass with 60% of each long cases, short cases & TOACS )
- Candidates who have completed their trainings alongwith all the requirements mentioned in the curriculum shall have to appear in the final examination atleast once within a period of 7 years (from the time of induction) otherwise .failure to compliance with this ,the matter will be referred to the competent authority through proper channel for final decision.

### **Synopsis and Thesis Writing:**

Research work / Thesis writing must be completed and thesis be submitted at least 6 months before the end of final year of the program.

Thesis evaluation & defense will be carried out at the end of 4th calendar year of MS.

### **Submission/ Evaluation of Synopsis:**

- The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on the university website.
- The research topic in clinical subject should have 30% component related to basic sciences and 70% component related to applied clinical sciences. The research topic must consist of a reasonable sample size and sufficient numbers of variables to give training to the candidate to conduct research, to collect & analyze the data.
- Synopsis of research project shall be got approved by the end of the 2nd year of MS/MD program. The synopsis after review by an Institutional Review Committee, shall be submitted to the University for consideration by the Advanced Studies & Research Board, through the Principal / Dean /Head of the institution.

### **Submission and Evaluation of Thesis:**

- The Thesis shall be submitted to the Controller of Examination through Head of Institute, duly

signed by the Supervisor, Co-Supervisor(s) and Head of the Department.

- Submission of Thesis is a prerequisite for taking Final Theory Examination.
- Examiners shall be appointed by the Vice chancellor on recommendation of Controller of Examination from a panel approved by Advance Studies & Research Board for evaluation of thesis.
- All MD/MS/MDS thesis shall be evaluated by External examiners
- Thesis defense shall be held after approval of evaluation reports by Advanced Studies & Research Board.
- Thesis defense shall be conducted by the external examiners who evaluated Thesis of the candidate.
- The candidate scoring 60% marks in Thesis defense examination will be declared as pass in the examination.

### **Continuous Internal Assessment:**

It will consist of professional growth oriented student-centered integrated assessment with an additional component of formative assessment and measurement based summative assessment

### **Attendance:**

Students joining postgraduate training program shall work as full-time residents during the duration of training maximum 2 leaves are allowed in one month, and should take full responsibility and participation in all facets of the educational process. The period of training for obtaining degrees shall be four completed years including the period of examination.

### **Presentations:**

In addition to the conventional teaching methodologies interactive strategies will also be introduced to improve both clinical and communication skills in the upcoming consultants. Presentations must be conducted regularly as scheduled and attended by all available faculty and 25 residents. As a policy, active participation of the postgraduate resident will be encouraged. Proper written feedback will be given for these presentations and that will be a part of Resident's Portfolio as well. Reflection of the events to be written by the residents as well and must be included in their portfolios.

### **Task Evaluation:**

This competency will be learned from journal clubs, review of literature, policies and guidelines, audit projects, medical error investigations, root cause analysis and awareness of healthcare facilities. Active participation and ability to fulfill given tasks will be encouraged. Written feedback must be given and documented to be included in portfolio.

### **Continuous Internal Assessment (100 Marks)**

- The award of continuous internal assessment shall be submitted confidentially in a sealed envelope.
- The supervisor shall submit cumulative score of internal assessment of all training years to be added together to provide a final cumulative score of Continuous Internal Assessments of all the trainees to the Head of the Department/ Dean of Post Graduate studies.
- The Head of Department/ Dean shall submit the continuous internal assessment score through the Principal/ Registrar office to the Examination Department of the University. Score of continuous internal assessment once submitted shall be final and cannot be changed subsequently under any circumstances.

- The weightage of internal assessment in the final examination will be 10%.
- Continuous Internal Workplace Based Assessments will be done by the supervisors, that may be based on but not limited to: Generic and Specialty Specific Competency Assessments.
- Multisource Feedback Evaluations 8. Assessment of Candidates' Training Portfolio

**Tools of assessment for the course:**

Tool Used	Domain Tested
MCQs	Knowledge
SEQs	Knowledge
TOACS/OSCE	Knowledge Skill Attitude
Presentations	Knowledge Skill Attitude
Portfolios and LogBook	Skill Attitude
Short Cases	Knowledge Skill Attitude
Long Cases	Knowledge Skill Attitude
Continuous Internal Assessment	Skill Attitude
Feedback from Department where rotation is being conducted	Knowledge Skill Attitude

**Section F:**

**Award of MS Ophthalmology Degree:**

A candidate having declared successful in all the components of examination i.e. Theory, Clinical and Thesis shall be declared pass and shall be conferred degree in the name of programme.

## Section G:

### Log Book:

As per format approved by the university.



**FAISALABAD MEDICAL  
UNIVERSITY FAISALABAD**

**MS - Ophthalmology**

**LOGBOOK**



## Certificate

This is to certify that:

Trainee Name: \_\_\_\_\_

FMU Registration No: \_\_\_\_\_

has to the best of my knowledge

1. Carried out all the intra disciplinary activities entered in the logbook, under my supervision.
2. Undergone rotational training as mentioned in the logbook.

Name of supervisor: \_\_\_\_\_

Signature: \_\_\_\_\_

Department/ Unit: \_\_\_\_\_

Name of Institution: \_\_\_\_\_

Official Stamp:

Date of Certification: \_\_\_\_\_

### Personal Details of Trainee

Name: \_\_\_\_\_

CNIC No: \_\_\_\_\_

FMU Registration No: \_\_\_\_\_

Date of Passing JCAT: \_\_\_\_\_

Training Commencement Date: \_\_\_\_\_

Speciality: \_\_\_\_\_

Unit: \_\_\_\_\_

Name of Supervisor: \_\_\_\_\_

Name of Institution: \_\_\_\_\_

### SUMMARY SHEET

To be filled at the end of 2 years of training.

Setting	Total No.
1. Cases managed in wards	
2. Cases managed in emergency	
3. Cases managed in OPD	
4. Procedures performed in OT (Minor and Elective List)	
5. Laser Therapeutic Procedures Performed	
6. Refractions done	
<b>Total:</b>	

## Section H:

As per format provided by the university.



FAISALABAD MEDICAL  
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MS - Ophthalmology

# Portfolio

### OCULAR EXAMINATION

Pin Hole VA: \_\_\_\_\_

Refraction: \_\_\_\_\_

Amsler Grid: \_\_\_\_\_

Visual Field by Confrontation:  
\_\_\_\_\_

VA   
IOP 

#### Anterior Segment Examination:

Lid/Adnexa: \_\_\_\_\_

Conjunctiva: \_\_\_\_\_

Cornea: \_\_\_\_\_

Anterior Chamber: \_\_\_\_\_

Gonioscopy: \_\_\_\_\_

Iris and Pupil: \_\_\_\_\_

Lens: \_\_\_\_\_

Vitreous: \_\_\_\_\_

#### Posterior Segment Examination:

Macula: \_\_\_\_\_

Vessels: \_\_\_\_\_

Optic Disc: \_\_\_\_\_

Fundus Diagram: \_\_\_\_\_

## INDEX

Sr.#	Content	Page No.
1	Introduction of the Program	
2	Program Outcomes	
3	Clinical Rotations	
	Clinical round Presentation	
	Long Case Presentation	
4	Assessments Section	
5	Formative Assessments	
	MINI Cox	
	DOPS	
	In house yearly assessment record	
6	Summative Assessment Record	
	Mid Term record	
7	Research	
8	Journal Club Meeting	
9	Training Workshops/Mandatory Workshops	
10	Conferences/ Seminars	
11	Voluntary Work	
12	Feedback Forms	
13	Reflections	

### Reflections

Reflection is the process of describing an event or interaction from a person's own point of view including his personal experience. It has following main components:

Description of the event. (What, when, where why)

Evaluation of the event. (Feelings, experience, expectations)

Plan of action. (Take home message from the event)

The trainee will add reflection of each event in the respective section according to the format provided below.

DESCRIPTION	<ul style="list-style-type: none"> <li>what was the event, where and what was its objective</li> </ul>
EVALUATION	<ul style="list-style-type: none"> <li>what happened, why it happened, how it happened?</li> <li>what are the good points and which points need improvement?</li> <li>what can be done to improve it</li> </ul>
PLAN OF ACTION	<ul style="list-style-type: none"> <li>How this process will help you in future.</li> <li>what have you learnt from this experience.</li> </ul>

## **Section I:**

### **Paper Scheme:**

#### **Written Paper Intermediate Examination:**

- **Clinical Ophthalmology:** 50 MCQs + 7 SEQs
- **Clinical Optics and Refraction:** 20 MCQs
- **Basic Ophthalmic Sciences:** 30 MCQs + 3 SEQs

#### **Basic Sciences and Optics**

<b>Sr. No</b>	<b>Topics</b>	<b>No. of MCQs</b>	<b>Level</b>	<b>No. of SEQs</b>
01.	Ocular Anatomy	15	C1	2
02.	Ocular Pharmacology	03	C1	
03.	Ocular Pathology	06	C1	1
04.	Ocular Physiology	06	C1	
05.	Clinical Optics and Refraction	20	C1	

#### **Clinical Ophthalmology**

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of MCQs</b>	<b>Level</b>	<b>No. of SEQs</b>
01.	Anterior Segment	20	C1,c2 c3	3
02.	Posterior Segment	20	C1,c2,c3	2
03.	Neuro Ophthalmology and Strabismus	10	C1,c2,c3	2

#### **Written Paper Final Examination:**

**Clinical Ophthalmology:** 100 MCQs + 10 SEQs

<b>Sr. No.</b>	<b>Topics</b>	<b>No. of MCQs.</b>	<b>Level</b>	<b>No. of SEQs</b>
1.	Lid	5	C1 ,c2 ,c3	
2.	Conjunctiva	2	C1 ,c2 ,c3	
3.	Orbit	5	C2,c3	1
4.	Lacrimal System	2	C2,c3	
5.	Cornea and Refractive Surgery	10	C2,C3	1

6.	Glaucoma	10	C2,c3	1
7.	Uveitis	10	C2,c3	1
8.	Retinal Vascular Diseases	10	C2,c3	1
9.	Retinal Detachment	10	C2,c3	1
10.	Acquired Macular Disorders	10	C2,c3	1
11.	Hereditary Fundus Dystrophies	2	C1 ,C2	
12.	Ocular Tumors	2	C1,c2	1
13.	Neuro Ophthalmology	10	C1 ,c2	1
14.	Strabismus	10	C1,c2,c3	1
15.	Ocular Medications	2	C1,c2	

## **Section J:**

### **Anatomy:**

- **Clinical Anatomy of Eye** Snell R. S., Lemp M. A.
- **Wolf's Anatomy of Eye**
- **Ophthalmology Principles and Concepts** Newell F. W.

### **Physiology:**

- **Textbook of Medical Physiology** Arthur C. Guyton
- **Ophthalmology Principles and Concepts** Newell F. W.
- **Adler's Physiology of the Eye**

### **Pathology:**

- **Ocular Pathology** Apple D. J., Rabb M. F.
- **Ocular Pathology** Gree.

### **Optics and Refraction:**

- **Clinical Optics** 3<sup>rd</sup> Edition Elkington A. R., Frank H. J., Greaney M. J.
- **Practice of Refraction** Duke Elder

### **Clinical Ophthalmology**

- **Clinical Ophthalmology** 9<sup>th</sup> edition Jack J. Kanski
- **Practical Ophthalmic Surgery** Willshaw H.
- **Ophthalmology** 5<sup>th</sup> Edition Myron Yanoff, Jay S. Duker
- **Oxford Handbook of Ophthalmology** 4<sup>th</sup> Edition
- **Ophthalmology Secrets** 4<sup>th</sup> Edition
- **The Ophthalmology Examinations Review** 3<sup>rd</sup> Edition, Tien Yin Wong.

**Section K:**

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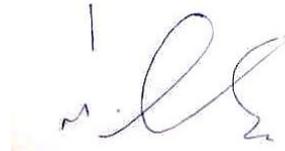
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