

---

---

**CURRICULUM  
FOR  
2 YEARS DIPLOMA PROGRAMME  
IN  
OPHTHALMIC MEDICINE  
AND  
SURGERY  
(DOMS)**



**2007**

**UNIVERSITY OF HEALTH SCIENCES  
LAHORE, PAKISTAN**

---

---

<b>SR.</b>	<b>CONTENTS</b>	<b>PAGE NO</b>
1	Foreword	1
2	Aims and Objectives of the Course	3
3	Specific Learning Outcomes	4
3	Nomenclature and Duration	5
4	Eligibility Criteria for Admission	8
5	Recognition/Equivalence Related Issues	9
6	Content Outline	10
8	Methods of Instruction/Course Conduction	18
9	Log Book	20
10	Literature Review	22
11	Examinations	23
12	Recommended Books	28

## FOREWORD

University of Health Sciences (UHS) Lahore was inaugurated by the President of Pakistan on the 3<sup>d</sup> of October 2002 with the vision to explicitly address academic and research needs in the field of health sciences and allied disciplines and to uplift their existing level to bring them on a par with the international standards.

The mission of the University is to develop an intellectual nexus to provide excellence and innovation in medical education and research in order to;

- Impart knowledge and skills to health care providers to enhance their competence in providing community oriented and multi-disciplinary patient-centered care
- Train and produce researchers and specialists in basic and clinical medical sciences
- Establish and maintain continuing professional development programmes for the faculty
- Provide trained professionals and scientists/researchers for the field of Electro Medical/Bio-Medical disciplines
- Assure quality in health education and research at all levels

A university is the zenith of knowledge that imparts quality education and awards degrees for extensive educational attainments in various disciplines with attendant advancement for the development of intellectual community. Protection of traditional knowledge, making exploration about it and obtaining deep understanding of modern technology and research techniques are some of the responsibilities of any university.

UHS is running a number of courses in the field of health sciences in Punjab. The list extends from undergraduate level courses up to the doctorate level both in basic, clinical and allied health sciences.

Since its inception, certain vital tasks were taken into serious consideration by UHS, for instance, curricula development and their up-gradation were among the most important tasks besides introduction of contemporary educational programmes.

UHS has revised and finalized curricula for undergraduate Medical/Dental Education, BSc Nursing, and Allied Health Sciences.

In keeping with its commitment for further improvement in the standard of medical education, UHS has taken an initiative to modify and improve one year postgraduate diploma courses to 2 years structured training programmes.

I do not believe in selling an old product in a new packing with a fresh label on it, just to do the job. Original products with actual outcomes for the society must be guaranteed. Being the Vice Chancellor of a public sector health university, I believe, it is my duty to remain vigilant and committed to the cause of improvement of the conventional medical and allied health sciences' curricula on regular basis. This will help produce technically sound professionals with advanced knowledge and skills.

Presently, UHS has designed and facilitated curriculum development committees for eleven clinical disciplines namely: DTCD, DPM, DMRT, DOMS, DLO, Dip. Card, DCH, DCP, DGO, DMRD and DA.

This document precisely briefs the details of updated curriculum for Diploma in Ophthalmic Medicine and Surgery (DOMS) as prepared by the Experts' Committee.

I am pleased to acknowledge the efforts made by Prof. I. A. Naveed, the Department of Medical Education and the members of the committee for DOMS consisting of: *Prof. Tahsin-un-Nabi Sahi (NMC), Prof. Mohammad Tayyab (SIMS), Prof. Ali Haider (PGMI), Prof. Imran Akram (PGMI) and Prof. Muhammad Khalil Rana (LMDC)* . The contributions made by them will go a long way in the education and training of doctors in this field.

I do hope, the revised course will be able to meet the needs of latest trends in Ophthalmic Medicine and Surgery and will certainly produce competent mid-level specialists in the field, which is the main objective of this programme.

**Prof. M. H. Mubbashar**

Hilal-e-Imtiaz, Sitara-e-Imtiaz  
MB, FRCP, FCPS Psych, FRC Psych, DPM  
Vice Chancellor/ Chief Executive

## AIMS AND OBJECTIVES OF THE COURSE

### AIM

The aim of 2 years diploma programme in Eye is to equip medical graduates with relevant professional knowledge, skills and ethical values to enable them to apply their acquired expertise at primary and secondary health care organizations as non-academic consultants.

### OBJECTIVES

At the end of training in DOMS, a trainee doctor should be able to:

1. Take a comprehensive and pertinent history of a patient presenting with Eye related complaints
2. Perform detailed physical examination in a rational sequence that is both technically correct as well as methodical
3. Elicit physical signs without discomfort to the patient
4. Evaluate patients in the setting of outpatients department, hospital wards and emergency
5. Order a set of relevant investigations considering availability, diagnostic yield, cost-effectiveness, side effects, and implications for management
6. Comprehend Community Indicators related to individual's health
7. Aware of and can apply national and international guidelines for treatment and assessment
8. Counsel patients and relatives in patient's preferred language in elective and emergency situations in keeping principles of good communication skills, empathy and empowerment of patients
9. Exhibit emotional maturity and stability, integrity, ethical values and professional approach, sense of responsibility in day-to-day professional activities
10. Take proper informed consent for physical examination and ensure confidentiality and appropriate environment for intimate physical examination
11. Act as an independent specialist at community/Tehsil and District Headquarter Hospital
12. Show initiative and become life long self-directed learners tapping on resources including clinical material, faculty, internet and on-line learning programmes and library

## SPECIFIC LEARNING OUTCOMES

Following competencies will be expected from a student completing 2 years' course in DOMS, including clinical, surgical and preventive practice in eye, student should be able to:

1. Discuss etiology, pathogenesis, epidemiology and management of disorders in Eye on topics given in the list of course contents
2. Discuss principles of basic sciences as applied to Eye like haemorrhage, blood transfusion, shock, sterilization of instruments, infection, antibiotics, inflammation, repair & healing and malignancy
3. Identify common eye problems in a scientific manner while keeping in mind the logical reasoning and a clear understanding of their impact on human mind and body
4. Formulate a working diagnosis and consider relevant differential diagnosis
5. Decide and implement suitable treatments considering safety, cost factors, complications and side effects
6. Practice proper procedures in operating theatres & procedure rooms including gowning, gloving, use of various sutures, surgical principles, & use & working of electro medical equipment
7. Assist at major surgery and perform recommended eye related procedures under supervision
8. Maintain follow-up of patients at appropriate intervals, recognizing new developments and/or complications and offering sensible management protocols

## NOMENCLATURE AND DURATION

### **NOMENCLATURE OF THE PROPOSED COURSE:**

The name of diploma course should be retained as DOMS. This name has been recognized and established for the last many decades worldwide. The duration of courses should be two years structured training in a recognized department under an approved supervisor.

**Course Title:** DOMS (Diploma in Ophthalmic Medicine and Surgery)

**Training Centres:** Eye Departments (accredited by UHS) in affiliated institutes of the University of Health Sciences Lahore

### **Course Duration and Scheme of the Course:**

**Total Duration** 2 years structured training (6 months in Part I and one & a half year in Part II) in a recognized department under the guidance of an approved supervisor

### **Part I-SIX MONTHS**

#### **Theoretical Component**

- Anatomy of Orbit and its application pertaining to diseases and surgical procedures
- Physiology of eyeball and adnexa and structures as applied to or affected by disease process
- Pathology (Microbiology, Interpretation of Laboratory Test)
- Ocular Pharmacology
- Principles of General Surgery
- Behavioral Sciences
- Biostatistics and Research

#### **Clinical Component**

- Instrumental Skills
1. Slit Lamp Examination
  2. Direct Ophthalmology
  3. Indirect Examination
  4. 90D Examination
  5. Gonioscopy
  6. Use of Microscope
  7. Refraction
  8. Exophthalmometry

9. Hess Test
10. Keratometry
11. Visual Field
12. Ultrasound

- Clinical Skills

1. Visual Acuity
2. Pupil Reactions
3. Digital Tonometry
4. Ocular Movements
5. Cover Test
6. Colour Vision
7. Lid Eversion
8. Regurgitation

- Regular duties in wards and OPD Routine history taking, examination and investigations

## **Part II- YEAR & a HALF**

### **Theoretical Component**

- Neuro Ophthalmology
- Medical Ophthalmology
- Differential Diagnosis
- Lids
- Cornea
- Conjunctiva
- Uveal Tract
- Lens
- Glaucoma
- Retinal Disease
- Lachrymal Apparatus
- Ocular Motility

### **Clinical Component**

- Surgical Skills
  - Cataract Extraction
  - Glaucoma Surgery
- Common Lid Surgery
  - Ectropion
  - Entropion
  - Trichiasis
- Common Conj Surgery
  - Pterygium
  - Squint
- Regular duties in ward and OPD

- Routine history taking examination and investigations

### **Radiological Tests**

- X-ray
- CT
- MRI
- Ultra Sound
- A scan
- B scan

## ELIGIBILITY CRITERIA FOR ADMISSION

### **DOCUMENTS REQUIRED FOR THE ADMISSION**

1. Completed DOMS application form
2. Copy of MBBS degree with mark sheets of professional examinations and certificate of number of attempts in the professional examinations
3. Copy of PMDC registration certificate
4. Three latest passport size photographs
5. Reference letters from two consultants, with whom the applicant has worked
6. Certificates of completion of required experience

### **GENERAL REQUIREMENTS**

Candidates eligible for admission should have MBBS or equivalent qualification, registered with PMDC and can fulfill one of the following criteria:

- a. One year experience in Ophthalmology as house officer/medical officer from a recognized institution
- b. Six months experience in Ophthalmology and six months in General Medicine or Surgery as house officer/house surgeon/medical officer

### **SPECIAL REQUIREMENTS**

- A. Obtaining pass percentage in the entry test as determined by the UHS rules
- B. Qualifying the interview successfully
- C. Having up to the mark credentials as determined by the UHS rules (no. of attempts in each professional, any gold medals or distinctions, relevant work experience, research experience from a recognized institution, any research article published in a National or an International Journal)

### **REGISTRATION AND ENROLLMENT**

- The total number of students enrolled for the course must not exceed 8 per unit
- UHS Lahore will approve supervisors for diploma courses
- Candidates selected for the courses will be registered with relevant supervisors and enrolled at UHS

## RECOGNITION/EQUIVALENCE OF THE DEGREE AND INSTITUTION

After two years training course, candidate should be given status of mid-level specialist equivalent to any other similar qualification.

### **ACCREDITATION RELATED ISSUES OF THE INSTITUTION:**

#### **1. Faculty**

Properly qualified teaching staff in accordance with the requirements of Pakistan Medical and Dental Council (**PMDC**)

#### **2. Adequate Space**

Including class-rooms (with audiovisual aids), computer lab, examination rooms and relevant instruments and machines for eye examination for example, Ophthalmoscope direct and indirect, retinoscope, slit lamp bio-microscope, gonioscope and three mirror lens, tonometer, Cross cylinder, ultrasound machine, operation theater, Operating microscope, 90, 78, and 60 D lens, keratometer

#### **3. Library**

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

# CONTENT OUTLINE

## **Part I DOMS**

### **ANATOMY**

At the end of the course the candidate should be able to discuss gross anatomy of the orbit and its application pertaining to diseases and surgical procedures. Following topics are relevant to teach in Anatomy:

1. Applied Embryology of Eye
2. Orbit bones
3. Soft parts
4. Cranial nerves, autonomic nervous system
5. Eye ball + Adnexa
6. Pathways + Cortex
7. Extra ocular muscles
8. Eye ball with its coats
9. Cranial Nerves, 2nd, 3rd, 4th, 5th, 6th, 7th,
10. Autonomic supply of the orbit and its contents
11. Blood supply of the orbit and its contents
12. Lacrimal system
13. Visual pathway and visual cortex

### **PHYSIOLOGY**

The candidate should be able to understand functions of the eye ball and adnexa and structures as applied to or affected by a disease process.

1. Transparency of Cornea
2. Aqueous humour dynamics
3. Pupil, its functions and controls
4. Accommodation
5. Functions of retinal pigment epithelial cells – retina and its physiology
6. Rods and cones, formation of nerve signal and vitamin A metabolism
7. Lens transparency
8. Functions of extra ocular muscles (ocular motility)
9. Binocular vision

### **PATHOLOGY**

#### **1. General Pathology**

##### **Cell Injury and adaptation**

##### **Cell Injury**

- Reversible and Irreversible Injury

- Fatty change, Pigmentation, Pathologic calcification
- Necrosis and Gangrene

Cellular adaptation

- Atrophy, Hypertrophy,
- Hyperplasia, Metaplasia, Aplasia

### **Inflammation**

- **Acute inflammation** --- Vascular changes, Chemotaxis, Opsonization and Phagocytosis
- Enlist the cellular components and chemical mediators of acute inflammation
- Differentiate between exudates and transudate

- **Chronic inflammation**

- Etiological factors, Granuloma

### **Cell repair and wound healing**

- Regeneration and Repair
- Healing--- steps of wound healing by first and second intention
- Factors affecting healing
- Enlist the complications of wound healing

### **Haemodynamic disorders**

- Define and classify the terms Edema, Haemorrhage, Thrombosis, Embolism, Infarction & Hyperaemia
- Define and classify Shock with causes of each.
- Describe the compensatory mechanisms involved in shock
- Describe the pathogenesis and possible consequences of thrombosis
- Describe the difference between arterial and venous emboli

### **Neoplasia**

- Dysplasia and Neoplasia
- Differences between benign and malignant neoplasms
- Enlist the common etiological factors for neoplasia
- Define and discuss the different modes of metastasis
- TNM staging system and tumor grade

### **Immunity and Hypersensitivity**

## **2. Special Pathology**

Ocular Tumors

## **3. Microbiology**

- History and introduction to Microbiology
- Microbiology, Physiology, Life Cycle and Classification and parasites.
- Role of Microbes In Various Human Diseases

- Infection source
  - A brief account of the classification of microorganisms .
  - Morphology: Identification of various shapes of bacteria and viruses under the microscope.
  - Distribution, size, motility, reproduction and functions of bacteria and viruses.
  - Effects of environment upon bacteria and viruses.
  - Sterilization and disinfection. Definition, use of physical and chemical disinfectants.
  - Infection and immunity pathogenicity, pathology of infection, resistance and natural immunity, antigens and antibodies.
  - Common Bacterial and viral diseases of man.
  - Spores, Yeast and moulds.
  - Nosocomial Infections
  - Bacterial Growth and Death
  - Important Viruses
  - Important Parasites
  - Sterilization and disinfection
  - Immunization
  - Use Of Investigation And Procedures In Laboratory
- Interpretation of Laboratory Tests

The student should be able to understand the relevance and importance of:

- **Swab**

Collection

Transfer

Plating

- **Biopsy**

Collection

Transfer

- **Gram Staining**

TLC

ESR

Hb%

## **OCULAR PHARMACOLOGY**

The student should be able to choose appropriate drug for a given situation and select the proper route for the best possible delivery

Introduction to ophthalmic pharmacology

Diagnostic

Therapeutic

Cycloplegics & mydriatics (mechanism of action, pharmacodynamics, pharmacokinetics)

Uses of cycloplegics & mydriatics, Adverse effects.

Antibiotics (Types, Uses, Adverse reactions and Side Effects)

Antiviral

Anti-fungals

Anti-glaucoma drugs

Adverse Reactions of other Ophthalmic Drugs

Anti-histamines

Topical anesthetics

Steroids

Anti-inflammatory drugs

Non-steroidal anti inflammatory drugs

Lubricants

Diagnostic Stains: Fluorescein, Rose Bengal

## **Principles of General Surgery**

### **Behavioural Sciences**

a. Bio-Psycho-Social (BPS) Model of Health Care

b. Use of Non-medical Interventions in Clinical Practice

- Communication Skills
- Counselling
- Informational Skills

c. Crisis Intervention/Disaster Management

d. Conflict Resolution

e. Breaking Bad News

f. Medical Ethics, Professionalism and Doctor-Patient Relationship

- Hippocratic Oath
- Four Pillars of Medical Ethics (Autonomy, Beneficence, Non-maleficence and Justice)
- Informed Consent and Confidentiality
- Ethical Dilemmas in a Doctor's Life

g. Delivery of Culturally Relevant Care and Cultural Sensitivity

h. Psychological Aspects of Health and Disease

- Psychological Aspect of Health
- Psychological Aspect of Disease
- Stress and its Management
- Psychological Aspect of Pain

- Psychological Aspect of Aging

## **Biostatistics and Research**

- a. Introduction to Bio-Statistics
- b. Introduction to Bio- Medical Research
- c. Why research is important?
- d. What research to do?
  - Selecting a Field for Research
  - Drivers for Health Research
  - Participation in National and International Research
  - Participation in Pharmaceutical Company Research
  - Where do research ideas come from
  - Criteria for a good research topic
- e. Ethics in Health Research
- f. Writing a Scientific Paper
- g. Making a Scientific Presentation
- h. Searching the Literature

## **Part II DOMS**

### **Neuro Ophthalmology**

Disc Oedema

Optic Neuritis

Intra-cranial pathology affecting

- Eyes
- Vision
- Visual Field

Paralytic squint

### **Medical Ophthalmology**

Autoimmune disease and eyes

Intraocular tumours

Endocranial Disease

### **Lids**

Entropion/Ectropion

Blepharitis

Tumours

- Benign
- Malignant

Ptosis

## **Cornea**

Keratitis

Bacterial

Viral

Chlamydial

Fungal

Corneal Opacities

Corneal degeneration and dystrophias

Keratoconus

## **Conjunctiva**

Inflammation

Pterygium

Tumours

- Benign
- Malignant

Symblepharon

Dry Eye

## **Uveal Tract**

Uveitis

- Type
- Complication
- Treatment

Coloboma

## **Lens**

- Types of Cataract
- Syndromes
- Surgery

## **Glaucoma**

Types of Glaucoma

Treatment

- Medical
  - Betablockers
  - Prostaglandins
  - Others
- Surgical

## **Retinal Disease**

Diabetic retinopathy

Retinal detachment

Central retinal vein occlusion and artery occlusion

Vitreous haemorrhage

## **Lachrymal Apparatus**

Lachrymal passages obstruction and management at different ages  
Dry eye

## **Ocular Motility**

Squint

- Paralytic
- Myaesthesia Gravis

## **Differential Diagnosis**

Students should know major groups of differential diagnosis

## **Low Vision**

- Painless gradual
- Painless sudden
- Painful sudden
- Painful gradual

## **Red Eye**

Painful blind eye

Diplopia

Proptosis

Cause of peripheral constriction of visual field

Congenital and developmental diseases of the crystalline lens

Epiphora/watery eye

Corneal deposits/opacities

White pupil

Dry eye

Ocular surface disease

Papillae

Follicles

## **Physical Optics**

Light

Lasers

Reflection

Laws

Plain surface

Lenses and their formy best

Curved Surface

Total internal reflection

Principals of refraction

## **Prisms**

Clinical Optics

- IOLs
- Optics
- Calculation

- Principles of Refraction
- Retinoscopy
- Objective
- Subjective
- Cross cylinder
- Duochrome test
- Transposition of lenses
- Low vision aids
- Optics and ray diagrams of Instruments

## METHODS OF INSTRUCTION/COURSE CONDUCTION

As a policy, active participation of students at all levels will be encouraged.

Following teaching modalities will be employed:

1. Lectures
2. Seminar Presentation and Journal Club Presentations
3. Group Discussions
4. Grand Rounds
5. Clinico-pathological conferences
6. SEQ as assignments on the content area
7. Self study, assignments and use of internet
8. Bedside teaching rounds in ward
9. OPD & Follow-up clinics
10. Operation/assistance/supervised surgery
11. Long and short case presentations
12. Clinical skills training workshops

In addition to the conventional teaching methodologies following interactive strategies will also be introduced to improve both communication and clinical skills in the upcoming consultants:

### **1.1. Monthly Student Meetings**

Each affiliated medical college approved to conduct training for DOMS will provide a room for student meetings/discussions such as

- a. Journal Club Meeting
- b. Core Curriculum Meetings
- c. Skill Development
- d. Interactive Sessions

#### ***a. Journal Club Meeting***

Two hours per month should be allocated to the presentation and discussion of a recent Journal article related to Eye Diseases. The article should be critically evaluated and its applicable results should be highlighted, which can be incorporated in clinical practice. Record of all such articles should be maintained in the relevant department of each medical college. Students of different medical colleges may be given an opportunity to share all such interesting articles with each other.

### ***b. Core Curriculum Meetings***

All the core topics of DOMS should be thoroughly discussed during these sessions. The duration of each session should be at least two hours once a month. It should be chaired by the Chief Student (elected by the students of the relevant diploma). Each student should be given an opportunity to brainstorm all topics included in the course and to generate new ideas regarding the improvement of the course structure.

### ***c. Skill Development***

Two hours twice a month should be assigned for learning and practicing clinical skills.

**List of skills to be learnt during these sessions is as follows:**

1. Communication skills
2. Physical examination related to the Eye
3. Practical skills i.e, use of relevant clinical instruments
4. Presentation skills: Power point, lectures, small group discussions, article presentation etc.
5. Research and scientific writing
6. Management of eye related emergencies in Primary Care
7. For acquisition of instrumental skills like slit lamp examination, direct ophthalmoscopy, indirect examination, 90D examination, gonioscopy, use of microscope, refraction, exophthalmometry, Hess Test, keratometry, visual field, ultrasound etc., opportunities during ward postings should be availed

### **1.2 Annual Grand Meeting**

Once a year all students enrolled for DOMS should be invited to the annual meeting at UHS Lahore.

One full day will be allocated to this event. All the chief students will present their annual reports. Issues and concerns related to their relevant diploma courses will be discussed. Feedback may be collected and also suggestions can be sought in order to involve students in decision making. The research work and their literary work may also be displayed.

In the evening an informal gettogether and dinner should be arranged. This will help in creating a sense of belonging and ownership among students and the faculty.

## LOG BOOK

The trainees must maintain a log book and get it signed regularly by the supervisor. A complete and duly certified log book should be part of the requirement to sit for the DOMS examination. Log book should include adequate number of diagnostic and therapeutic procedures, routine and emergency management of patients, case presentations in CPCs, journal club meetings and literature review.

Proposed Format of Log Book is as follows:

**Candidate's Name:** \_\_\_\_\_  
**Roll No.** \_\_\_\_\_

### **PROCEDURES:**

1. Cataract Surgery
2. Glaucoma Surgery
3. Common Lid Surgery  
Ectropion  
Entropion  
Trichiasis
4. Common Conj. Surgery  
Pterygium  
Squint

### **Procedures Performed**

<b>Sr.#</b>	<b>Date</b>	<b>Name of Patient, Age, Sex &amp; Admission No.</b>	<b>Diagnosis</b>	<b>Procedure Performed</b>	<b>Supervisor's Signature</b>
1					
2					

### **Emergencies Handled**

<b>Sr. #</b>	<b>Date</b>	<b>Name of Patient, Age, Sex &amp; Admission No.</b>	<b>Diagnosis</b>	<b>Procedure /Management</b>	<b>Supervisor's Signature</b>
1					
2					

### Case Presented

<b>Sr.#</b>	<b>Date</b>	<b>Name of Patient, Age, Sex &amp; Admission No.</b>	<b>Case Presented</b>	<b>Supervisor's Signature</b>
1				
2				

### Seminar/Journal Club Presentation

<b>Sr.#</b>	<b>Date</b>	<b>Topic</b>	<b>Supervisor's signature</b>
1			
2			

### Evaluation Record

(Excellent, Good, Adequate, Inadequate, Poor)

<b>Sr.#</b>	<b>Date</b>	<b>Method of Evaluation (Oral, Practical, Theory)</b>	<b>Rating</b>	<b>Supervisor's Signature</b>
1				
2				

## LITERATURE REVIEW

Students will be assigned a clinical problem; commonly encountered in the relevant specialty and will be specifically trained to review literature in the pertinent field and write a **'Review of an Article'** comprising of:

- Topic
- Introduction
- Discussion of the reviewed literature
- Conclusion
- References

## EXAMINATIONS

### **Assessment**

It will consist of action and professional growth oriented ***student-centered integrated assessment*** with an additional component of ***informal internal assessment, formative assessment*** and measurement-based ***summative assessment***.

### **Student-Centered Integrated Assessment**

It views students as decision-makers in need of information about their own performance. Integrated Assessment is meant to give students responsibility for deciding what to evaluate, as well as how to evaluate it, encourages students to '**own**' the evaluation and to use it as a basis for self-improvement. Therefore, it tends to be growth-oriented, student-controlled, collaborative, dynamic, contextualized, informal, flexible and action-oriented.

In the proposed curriculum, it will be based on:

- Self Assessment by the student
- Peer Assessment
- Informal Internal Assessment by the Faculty

### ***Self Assessment by the Student***

Each student will be provided with a pre-designed self-assessment form to evaluate his/her level of comfort and competency in dealing with different relevant clinical situations. It will be the responsibility of the student to correctly identify his/her areas of weakness and to take appropriate measures to address those weaknesses.

### ***Peer Assessment***

The students will also be expected to evaluate their peers after the monthly small group meeting. These should be followed by a constructive feedback according to the prescribed guidelines and should be non-judgmental in nature. This will enable students to become good mentors in future.

## ***Informal Internal Assessment by the Faculty***

There will be no formal allocation of marks for the component of Internal Assessment so that students are willing to confront their weaknesses rather than hiding them from their instructors.

It will include:

- a. Punctuality
- b. Ward work
- c. Monthly assessment (written tests to indicate particular areas of weaknesses)
- d. Participation in interactive sessions

## **Formative Assessment**

Will help to improve the existing instructional methods and the curriculum in use

### ***Feedback to the faculty by the students:***

After every three months students will be providing a written feedback regarding their course components and teaching methods. This will help to identify strengths and weaknesses of the relevant course, faculty members and to ascertain areas for further improvement.

## **Summative Assessment**

It will be carried out at the end of the programme to empirically evaluate **cognitive, psychomotor** and **affective domains** in order to award diplomas for successful completion of courses.

### ***Eligibility to Appear in Final Examination***

- Only those candidates will be eligible to take final examination, who have passed Part 1 examination (after 6 months of education) and have completed two years of structured/supervised training programme.
- Students who have completed their log books and hold certificates of 75% attendance may be allowed to sit for the exam
- The application for the final examination will be forwarded with recommendation of the supervisor
- Only those candidates who qualify in theory will be called for clinical examination

## **DOMS Examination**

### **Part I DOMS**

#### **Topics included in paper 1**

1. Anatomy of Orbit and its application pertaining to diseases and surgical procedures (15 MCQ)
2. Physiology of eyeball and adnexa and structures as applied to or affected by disease process (15 MCQ)
3. Pathology (20 MCQ)  
    General/Special Pathology (10 MCQ)  
    Microbiology, Interpretation of Laboratory Test (10 MCQ)
4. Ocular Pharmacology (15 MCQ)
5. Principles of General Surgery (20 MCQ)
6. Behavioural Sciences (10 MCQ)
7. Biostatistics and Research Methods (05 MCQ)

#### **Components of the Part 1 examination**

MCQ Paper	100	One Best Type
Total Marks	100	Marks

### **Part II DOMS**

#### **Topics included in paper I**

1. Neuro Ophthalmology
2. Medical Ophthalmology

#### **Topics included in paper II**

1. Differential Diagnosis
2. Cornea
3. Lids
4. Conjunctiva
5. Lens
6. Glaucoma
7. Uveal Tract
8. Retinal Disease
9. Lachrymal Apparatus
10. Ocular Motility

#### **Part II Examination**

### **Theory**

<b><u>Paper I</u></b>	<b><u>100 Marks</u></b>	<b>3 Hours</b>
10 SEQs (No Choice)	50 Marks	
50 MCQs	50 Marks	
<b><u>Paper II</u></b>	<b><u>100 Marks</u></b>	<b>3 Hours</b>
10 SEQs (No Choice)	50 Marks	
50 MCQs	50 Marks	

The candidates who pass in theory papers, will be eligible to appear in the clinical & viva voce.

**OSCE** **90 Marks**

10 stations each carrying 9 marks of 10 minutes duration; each evaluating performance based assessment with five of them interactive

**Clinical** **90 Marks**

Four short cases each carrying 15 marks and one long case of 30 marks.

**Components of the Part 2 examination**

Theory paper 1	100 marks
Theory paper 2	100 marks
Clinical/Oral	180 marks
Internal Assessment/Log Book	20 marks
Total Marks	400

A panel of four examiners from affiliated Eye departments (Two internal and two external) will be appointed for practical examination.

Each component of practical examination will be assessed by two examiners awarding marks simultaneously and independently. The final score awarded will be an average score, as agreed by both examiners.

**Pass Percentage and Other Regulations Regarding Examination**

- Criterion referenced assessment principles will be used

- 20 marks for the log book will be included in the OSCE component
- 60% marks will be a pass score in each component
- Candidates failing in any one component will have to re-sit the entire examination
- A maximum of 5 attempts to sit for the examination will be allowed, to be availed within 3 calendar years of the first attempt
- Re-admission in DOMS course is not permissible under any circumstances
- The results will be announced according to rules and regulations set by the Examination Branch of University of Health Sciences Lahore

## RECOMMENDED BOOKS

### **Anatomy**

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

### **Optics and Refraction**

1. Elkington A. R., Frank H. J., Greaney M. J. ***Clinical Optics.***
2. Duke-Elder. ***Practice of Refraction.***

### **Physiology**

1. Guyton. ***Textbook of Medical Physiology.***
2. Newell F. ***Ophthalmology Principles and Concepts.***
3. ***Adler's Physiology of the Eye.*** (For reference)

### **Pathology**

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

Kanski J. J. ***Clinical Ophthalmology.***

### **Ophthalmic Surgery**

Newill F. W. ***Ophthalmology Principles and Concepts***

### **Ophthalmic Surgery**

Willshaw H. ***Practical Ophthalmic Surgery.***  
Bailey and Love. ***Short Practice of Surgery.***

Rana M. H., Ali S. Mustafa M. ***A Handbook of Behavioural Sciences for Medical and Dental Students.*** Lahore: University of Health Science; 2007.

Fathalla M. F. and Fathalla M. M. F. ***A Practical Guide for Health Researcher.*** Cairo: World Health Organization; 2004.

### **Journals**

1. Archives of Ophthalmology (AMA USA)
2. British Journal Of Ophthalmology (UK)
3. Journal Of Oculoplastics and Reconstructive Surgery (USA)
4. Retina (USA)
5. Eye RC Ophth (UK)