

## In the Name of God

### Section I:

**Title: Optometry**

**Degree: M.Sc.**

### Introduction

Regarding the vast capability of optometry, great services in rehabilitation and clinical application, and also increasing advancement in new pieces of equipment and techniques, a graduate program of optometry is designed.

### Definition

Master course of optometry is one of the advanced courses in clinical and rehabilitation sciences. The optometrist will train for different activities in the field of optometry.

### The Aim of the Course

The aims of this program are as follows:

- A. Research activities that provide a scientific view in their practice.
- B. Familiarity with the new methods, equipment and techniques in prevention, evaluation and treatment in the field.
- C. Obtaining required abilities for presenting educational services.

### General Competencies

Graduates can perform the duties as an optometric/optical practitioner. After passing this program, the integration of skills, attitudes and knowledge will prepare the practitioners for professional activities.

- Maintaining professional and effective communication
- Medical assessment and examination of patients
- Filing and data entry and medical records
- Clinical decision making to solve the problem of patients
- Selecting the appropriate approach to diagnosis and treatment and its implementation
- Establishing the necessary coordination and referral
- Follow-up

### Special Qualifications

Holding bachelor degree in optometry is needed to enter this course.

### The Terms and Conditions of Admission to the Course

Based on the application forms, assessment of documents, and research and treatment background of applicants.

### Educational Strategies, Methods and Techniques

The educational strategies, Methods and Techniques are composed of the below main issues:

- Task-based learning
- Problem-based learning
- Subject-directed learning
- Evidence-based learning
- Hospital-based learning
- Systematic learning

## **Student Assessment**

Assessment methods:

- Written Exam
- Oral Exam
- OSCE (Objective Structure Clinical Exam)
- Logbook Assessment

The final assessment is in the form of an OSCE (Objective Structured Clinical Examination).

An OSCE consists of a series of short tasks completed in exam conditions. All tasks are taken from the GOC Competency Framework, which has already been used as the basis for the work-based assessment process.

## **Number of Credits and Classification**

- The minimum number of credits during a master's degree in optometry is 32.
- According to the option of the department, students may also have to pass Medical Information Technology (1 credit) and Special English Language (2 credit).

## **Ethical Issues**

The graduates should,

- Observe the Patient's Bill of Rights<sup>1</sup> when working with the patients.
- Strictly observe Biosafety and Patient Safety Rules\* concerning the patients, personnel and workplace.
- Observe the Rulebook for Dress Code<sup>2</sup>.
- Strictly observe the Regulations of Working with the Laboratory Animals<sup>3</sup>.
- Carefully preserve resources and equipment.
- Truly respect faculty members, staff, classmates and other students, and work for creating an intimate and respectful atmosphere.
- Observe social and professional ethical considerations in criticism.

1, 2 and 3 are contained in the Enclosures.

\* Biosafety and Patient Safety Rules will be set out by the Educational Departments and will be available to the students.

## Section II:

### Medical Information Technology

**Code of the Course:** 01

**Number of Credits:** 01

**Type of the Course:** Optional

**Prerequisite:** None

#### **Principal Objective(s) of the Course:**

Introduction to data extracted from medical databases.

#### **Course Description:**

In this course, students will get familiar with the basic concepts of computer, algorithm and information technology, operation systems such as DOS, Windows and medical information banks (Medline) and also in laboratory they put into practice what they have learnt theoretically.

**Main Topic:** 26 hours

**Theoretical:** 0.5 units (9 hours)

**Practical:** 0.5 units (17 hours)

#### **Principal Reference(s):**

- *Finding Information in Science, Technology and Medicine*, Jill Lambert, Taylor R. Francis, Latest edition
- *Information Technology Solutions for Healthcare*, Krzysztof, Zielinski, et al. Latest edition

#### **Student Assessment Practices:**

- Theoretical exam
- Practical exam

## **English Language for Optometrists**

**Code of the Course:** 02

**Number of Credits:** 02

**Type of the Course:** Optional

**Prerequisite:** None

### **Principal Objective(s) of the Course:**

Introduction to the principles of conversation, translation, writing and analysis of medical information, especially in optometry and ophthalmology field and also proper and scientific application of research articles.

### **Course Description:**

Most of the reference books of optometry have been written in English. Therefore, it is necessary for students of optometry to be familiar with this language and its application in optometry. In addition, they must read and understand the methods of assessment, treatment, etc. in textbooks of optometry.

**Main Topic:** 34 hours

**Theoretical:** 02 units (0 hours)

**Practical:** 0 units (34 hours)

### **Principal Reference(s):**

- All related optometric books
- All related optometric journals

### **Student Assessment Practices:**

- Written Exam
- Oral Exam

## Advanced Bio Statistics

**Code of the Course:** 03

**Number of Credits:** 02

**Type of the Course:** Compulsory

**Prerequisite:** None

### **Principal Objective(s) of the Course:**

Introduction to advanced statistical methods in health research.

### **Course Description:**

Statistical methods for research and advanced statistical processes, including interclass correlation, simple linear regression, multiple regression and multivariate analysis of variance, hypothesis testing, principals of questionnaire design, interviewing techniques, data collection, analysis and interpretation of findings, and using the standard statistical software such as SPSS are some of the subjects of this course.

**Main Topic:** 51 hours

**Theoretical:** 01 unit (17 hours)

**Practical:** 01 unit (34 hours)

### **Principal Reference(s):**

- *Principles and Methodology of Biostatistics* , Daniele V.E, Last Edition
- *Interprets and Uses of Medical Statistics*, Leslie E. Dali, Geoffriy J. Bourke, Last Edition

### **Student Assessment Practices:**

- Written Exam
- Oral Exam

## Research Methodology

**Code of the Course:** 04

**Number of Credits:** 02

**Type of the Course:** Compulsory

**Prerequisite:** None

### Principal Objective(s) of the Course:

Introduction to various components of the health system and designing the research proposal.

### Course Description:

This course covers all aspects of research including research selection, a statement of the problem, hypothesis generation, review of literature, methodology, ethic of research, subject selection, budget, non-experimental designs including both qualitative and quantitative methods, pilot study, data collection, measurement & sampling, analysis and formulation of conclusions.

It gives enough knowledge to design, develop and perform a research in allied health sciences, specifically in optometry, reviewing, and analysis of professional literature.

Students write a clinical research proposal in optometry, based on international standards.

Course format includes lectures and discussions.

**Main Topic:** 34 hours

**Theoretical:** 02 units (34 hours)

**Practical:** 0 units (0 hours)

### Principal Reference(s):

- Quinn, L. *Functional Outcomes Documentation for Rehabilitation*. (Last Edition)
- Shultz, k. Whiteny, D. *Measurement Theory in Action*, U.S.A
- *Rehabilitation Research*

### Student Assessment Practices:

- Written Exam
- Oral Exam

## **Evidence-Based Optometry**

**Code of the Course:** 05

**Number of Credits:** 02

**Type of the Course:** Compulsory

**Prerequisite:** None

### **Principal Objective(s) of the Course:**

The application of clinical evidences for appropriate assessment and proper designing of the treatment programs.

### **Course Description:**

According to the increasing trend of information, it seems necessary to classify this information according to evidences. Students should be able to analyze, formulate and respond to a special question related to various fields of clinical optometry.

The purpose of this course is to provide students the opportunity to get familiar with the evidence-based optometry and information about collecting evidences.

Definitions and foundations of evidence-based optometry and introducing the method guidelines of optometry.

**Main Topic:** 34 hours

**Theoretical:** 02 units (34 hours)

**Practical:** 0 units (0 hours)

### **Principal Reference(s):**

- Dawes M., Davies P.T, Gray A.M. *Evidence Based Practice: A Primer of Health Care Professionals*, Edinburgh: Churchill Livingstone, latest Edition

### **Student Assessment Practices:**

- Written Exam
- Oral Exam

## Visual Electrophysiology

**Code of the Course:** 06

**Number of Credits:** 03

**Type of the Course:** Compulsory

**Prerequisite:** None

### Principal Objective(s) of the Course:

Introduction to diagnostic tests of Electrophysiology in evaluating visual system.

### Course Description:

#### A) Theory

- Basics of Anatomy and Physiology of Retina
- Embryology and cytology of Retina
- Anatomy and Physiology of visual pathway and visual cortex
- Receptofield structure of ganglion cells of the retina
- Sources of electroretinography and interpretation of ERG waves
- Guidelines of ERG in different age groups
- Sources of visual evoked potential and interpretation of VEP waves
- Guidelines of VEP in different age groups
- Guidelines of electrooculography and interpretation of EOG waves
- Prognosis of visual acuity and amblyopia in infants through Electrophysiology tests

#### B) Practical

- How to record ERG
- Knowing instruments of recording VEP
- Recording ERG and VEP waves according to theory subjects.

### Main Topic: 68 hours

**Theoretical:** 02 units (34 hours)

**Practical:** 01 unit (34 hours)

### Principal Reference(s):

- Heart, W.M (1993), *Adler's Physiology of the Eye. Mosby Year Book*, Baltimore.
- Farris, B.K. (1991), *The Basics of Neuro-Ophthalmology Mosby Year Book*, Baltimore.

### Student Assessment Practices:

- Written Exam
- Oral Exam

## **Advanced Pediatric Optometry**

**Code of the Course:** 07

**Number of Credits:** 03

**Type of the Course:** Compulsory

**Prerequisite:** None

### **Principal Objective(s) of the Course:**

Introduction to visual system's development and growth in infants and children and investigation of abnormalities in them.

### **Course Description:**

#### A) Theory

- Details and steps in visual system growth from embryology to maturity, genetic of growth, stereopsis and binocular vision generally.
- Advanced investigation in binocular abnormalities in children, including refractive errors, amblyopia, strabismus, Peoria, trope, common ocular diseases in children, systemic diseases effecting on the eye and visual system.
- Special diagnosis of Electrophysiology of pediatric eye, neurological imaging, ultrasound studies and investigations, side effect of medicine in children.
- Metabolic dysfunctions and their effects on children's vision.
- Studies in different syndromes and side effects on children.
- Contact lenses and prescription in children.
- Child abuse and bad behavior.
- Dysfunction in learning abilities of children with dyslexia.
- Effective results of vision therapy in binocular anomalies, including amblyopia, strabismus and advanced treatments for each of them.
- Clinical studies in children below 1 year old and over that.
- Advanced clinical decisions to solve children's visual problems.

#### B) Practical

- Introduction to VA and stereopsis measuring instruments and contrast sensitivity in children.
- Introduction to electrooculogram, electroretinogram and VEP measuring instruments in children.
- Designing and manufacturing the laboratory aids related to topics of studies and experiment.
- Using experimental methods to increase children's visual skill.

**Main Topic:** 68 hours

**Theoretical:** 02 units (34 hours)

**Practical:** 01 unit (34 hours)

### **Principal Reference(s):**

- Press, L.J. and Moor, BD (1993), *Clinical, Pediatric Optometry Butterworth-Heinemann*. London.
- Moor, BD (1997), *Eye Care of Infants and Young Children Butterworth-Heinemann*.

**Student Assessment Practices:**

- Written Exam
- Oral Exam

## Advanced Contact Lenses

**Code of the Course:** 08

**Number of Credits:** 03

**Type of the Course:** Compulsory

**Prerequisite:** None

### Principal Objective(s) of the Course:

Introduction to special functions of contact lenses and new studies about it.

### Course Description:

#### A) Theory

- The latest improvements of physiology and biochemistry of the eye anterior segment studies related to dry eye, tear and contact lenses.
- Review of the latest investigations about designing the new contact lenses such as RGP.
- Photography related to contact lenses.
- Correcting Astigmatism with contact lenses.
- Correcting presbyopia with contact lenses.
- Correcting Aphakia with contact lenses.
- Orthokeratology and myopia control with contact lenses.
- Prescribing contact lenses in infants and children.
- Prescribing contact lenses in post refractive surgery patients.
- Special types of contact lenses: keratoconus, scleral, cosmetic and prothesis contact lenses.
- Using contact lenses in different sports and careers.
- Using new instruments in prescription of contact lenses: Topography of the cornea, pachometry and so on.
- Relations between contact lenses and ocular infections: eye microbiology, antibiotics, chemotherapy, eye immune mechanisms, allergies and inflammations.

#### B) Practical

- Introducing new instruments for evaluating and measuring anterior segment of the eye related to contact lenses.
- Photography of eye anterior segment.
- Evaluating and fitting Toric, bifocal, extended wear, Aphakic and cosmetic contact lenses.
- Introduction to manufacture and changing the parameters of contact lenses.
- Training the handling and caring of specific contact lenses to patients.
- Specular microscopy
- Pachometry
- Practical functions of contact lenses in different occupations.
- Introduction to manufacture, order and sell contact lenses.

**Main Topic:** 68 hours

**Theoretical:** 02 units (34 hours)

**Practical:** 01 unit (34 hours)

### Principal Reference(s):

- Hom, M.M. (1997). *Manual Of Contact Lens Prescribing And Fitting Butterworth-Heinmann*, Boston, U.S.A.

- Philips, A.J. and stone, J. (1989). Contact Lenses. Butterworth, London.

**Student Assessment Practices:**

- Written Exam
- Oral Exam

## Seminar

**Code of the Course:** 09

**Number of Credits:** 01

**Type of the Course:** Compulsory

**Prerequisite:** None

### **Principal Objective(s) of the Course:**

Introduction to scientific journals and analysis the research articles in Optometry.

### **Course Description:**

This course is designed to provide an opportunity to explore and discuss major topic areas in Optometry professions such as biomedical ethics, professional practice standards and regulation, basic management skills, interdisciplinary practice and interpersonal communication skills for the health care environment and other current and relevant issues of the profession.

Also lecture guest speakers and M.Sc. students share their experiences and knowledge in topics such as burn and wound care, hand therapy and other clinical skills in panel discussion (sessions).

**Main Topic:** 17 hours

**Theoretical:** 01 unit (17 hours)

**Practical:** 0 units (-- hours)

### **Principal Reference(s):**

International scientific database (Medline, Scopus, and etc.)

### **Student Assessment Practices:**

- Oral presentation

## Non-Surgical Treatment of Strabismus

**Code of the Course:** 10

**Number of Credits:** 03

**Type of the Course:** Compulsory

**Prerequisite:** None

### Principal Objective(s) of the Course:

Introduction to various novel methods of non-surgical treatment of paretic and not paretic strabismus.

### Course Description:

#### A) Theory

- History of non-surgical treatment of strabismus
- Strabismus types
- Principles of non-surgical treatment of strabismus
  - Lens therapy
  - Prism therapy
  - Occlusion
  - Active vision therapy
  - Knowing surgical treatment
- Treatment of sensory anomalies of strabismus
  - Amblyopia therapy
  - Eccentric fixation treatment
  - Suppression treatment
  - Treatment of abnormal retinal correspondence of retina
- Non-surgical treatment of exotropia
- Non-surgical treatment of esotropia
- Non-surgical treatment of hypertropia
- Non-surgical treatment of cyclotropia
- Vision therapy methods in strabismus
- Summary of non-surgical treatments of strabismus

#### B) Practical

- How to evaluate and prescribe monofocal, bifocal, multifocal and prismatic contact lenses in strabismic patients.
- Introduction to different methods of active orthoptic therapy in strabismus.
- Introduction to surgical treatment of strabismus by watching movies or live surgery.
- Introduction to evaluate and correct sensory and motor anomalies in strabismus.
- Using new orthoptic methods in non-surgical treatment of strabismus.
- Non-surgical treatment of strabismus in clinic, following up and reporting the results.

**Main Topic:** 68 hours

**Theoretical:** 02units (34hours)

**Practical:** 01units (34 hours)

### Principal Reference(s):

- Caloroso, E.E., Rouse, M.W., and cotter, S.A. (1993). *Clinical Management of Strabismus*. Butterworth-Heinmann, Boston. U.S.A.
- Good, W.V. and Hoyt, C.S. (1996). *Strabismus Management*. Butterworth- Heinmann, Boston. U.S.A.

**Student Assessment Practices:**

- Written Exam
- Oral Exam

## Advanced Paraclinical Techniques in Optometry

**Code of the Course:** 11

**Number of Credits:** 03

**Type of the Course:** Compulsory

**Prerequisite:** None

### Principal Objective(s) of the Course:

Introduction to physical principles in advanced paraclinical techniques, which applied to observe and assess the visual system function and investigation the bias in different instruments.

### Course description:

#### A) Theory

- Fundoscopy (slit lamp)
- Indirect ophthalmoscopy
- Ocular ultrasonography
- Corneal topography and keratometry
- Ocular photography
- Computerize visual field analysis
- Gonioscopy
- Tonometry
- Color vision

#### B) Practical

- Slit lamp technique in diagnosis of anterior chamber disease
- Practical knowledge about indirect ophthalmoscopy and using of different lenses to diagnosis of retina
- Practical biometry and measurement intra ocular lenses and axial length
- Doing topography and keratometry of cornea and gain in skill to investigation of them.
- Introduction to the application of different cameras for imaging and making slides from eye anterior and posterior segments.
- Introduction to the application of different instruments of measuring intra ocular pressure.
- Introduction to different computerized perimeters.
- Introduction to gonioscopy.
- Introduction to the application of the different color vision tests.
- Introduction to the essential instruments and techniques to correct low vision patients' acuity and prescribing telescopic glasses.

**Main Topic:** 68 hours

**Theoretical:** 02units (34 hours)

**Practical:** 01unit (34 hours)

### Principal Reference(s):

- Roberts, D. K. and Terry, J.E. (1996) *Ocular Diseases*. Butterworth-Heinmann, Boston. U.S.A.
- Eskridge, J.B., Amos, J.F. and Bartlett, J.D. (1991) *Clinical Procedures in Optometry*. J.B. Lippincott Company, New York.

### Student Assessment Practices:

- Written Exam
- Oral Exam

## **Internship**

**Code of the Course:** 12

**Number of Credits:** 03

**Type of the Course:** Compulsory

**Prerequisite:** None

### **Principal Objective(s) of the Course:**

Introduction to the clinical application of advanced optometry techniques in treatment centers.

### **Course Description:**

At the end of this course, the students will be able to use the acquired theoretical knowledge as applied in clinics for various patients in field. They should be able to perform a precise assessment and treatments for these patients, and then evaluate their treatments.

**Main Topic:** 0 hours

**Theoretical:** 0 units (- hours)

**Practical:** 0 units (- hours)

**Clinical Training:** 3 units (153hours)

### **Student Assessment Practices:**

- Written Exam
- Oral Exam

## **Project**

**Code of the Course:** 13

**Number of Credits:** 01

**Type of the Course:** Compulsory

**Prerequisite:** None

### **Principal Objective(s) of the Course:**

Ability to independently investigate an optometry related problem/topic and guide students to complete their Master thesis.

### **Course Description:**

This course is designed to enable students to investigate independently a problem/topic related to Optometry and guide and prepare them to complete their master thesis. Students will have this opportunity to perform and complete their project and put into practice what they have learnt in previous courses under supervision and guidance of a faculty member/research advisor.

Focus will be on review of literature, methodology, data collection & analysis and reporting results in scientific format.

Results are presented in written and oral format to the faculty and peers at the final week of the semester and will be critically reviewed. A faculty member screens both the written report and the presentation.

**Main Topic:** 34 hours

**Theoretical:** 0 units (- hours)

**Practical:** 01 unit (34hours)

### **Student Assessment Practices:**

Presentation of project booklet.

## **Thesis**

**Code of the Course:** 14

**Number of Credits:** 06

**Type of the Course:** Compulsory

**Prerequisite:** None

### **Principal Objective(s) of the Course:**

Introduction to perform research projects, analyze the results, and write a scientific article in different fields of optometry and optics.

### **Course Description:**

The degree is obtained by thesis research.

Students will design, perform and complete their own research under supervision of a supervisor and advisor (statistic/research advisor).

A pilot study will be done by the student (it could be the project course) then proposal of the thesis must be defended by the student and approved by postgraduate studies' committee of the faculty.

After completing research, and approving by the supervisor, thesis, which is written in scientific format and consists of formulation of the problem, literature review, materials & methods, procedure for collecting data, data analysis, results, conclusion and discussion, will be given to the referees as internal and external scientific staves.

At the defense session in the presence of External(s), Internals, advisor, supervisor, the postgraduate committee and other faculty members and peers, student delivers his/her thesis and respond to questions and critiques.

The course grade will be assigned based on evaluations from referees and the committee.

**Main Topic:** 0 hours

**Theoretical:** 0 units (- hours)

**Practical:** 0 units (-hours)

### **Student Assessment Practices:**

Presentation which is judged by external and internal examiners.