



COURSE OUTLINE

**B.Sc. OPTOMETRY & ORTHOPTICS
(Four Years)**

UNIVERSITY OF HEALTH SCIENCES LAHORE

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ADMISSION REQUIREMENTS

1. B.Sc. in Optometry and Orthoptics is highly competitive program. For admission a candidate must have higher secondary school (F.Sc.) in first division. Applicants with higher academic qualification and experience will be given preference.
2. The maximum age limit for the candidates will be 25 years.
3. Entry Test
4. A detailed CV along with two letters of references.
5. Good Character Certificate.

PROGRAMME OUTLINE

TUTORSHIP:

The optometry program will be conducted by:-

- ❖ **Programme Coordinator**
- ❖ **Course Tutors**

Programme Coordinator: Programme coordinator is a faculty member who will be responsible for the operation of all the Courses and laboratory training during the training year.

Students with difficulties with the Course shall be asked to consult the staff responsible for teaching that individual course.

Course tutor: Course tutorship will be undertaken by a full –time academic staff member, fellow and clinical demonstrator. Students will be assigned to a course tutor for the duration of the program. If a member of staff leaves while students are still on the program, then another member of staff will be assigned. Course tutors will normally see their students at least once in week. A student who has academic problem for which he/she needs advice or help should consult his / her Course tutor. If the matter cannot be dealt with directly by the tutor, he/she will seek further help on the student's behalf for the program tutor. The students will be provided a confidential counseling service run by trained professionals in the low vision clinic.

PROGRAMME OF STUDY

The duration of the degree program in Optometry and Orthoptics will be four years. It is planned to seek an affiliation with University of Health sciences Lahore.

The B.Sc. Optometry and Orthoptics course will include classroom lectures, laboratory exercises, and clinical rotations in designated hospital. All students must complete course work within the prescribed period of the course. The students failing in any course will be given only one chance to repeat the course before starting next level class. There will be monthly, quarterly in home assessments that will have weightage in the final grade.

One period of one hour, four to five days a week for 36 months shall be spent on interactive tutorial sessions. During these sessions, the students will participate actively on group discussion on topics designated. The rest of the time shall be spent in the out patients clinics in assisting refraction and optical workshop for learning dispensing skills. Students will be given good clinical exposure in the Refractions, contact lenses, low vision and Orthoptics. The candidate will also participate in the training at optical Lab.

The fourth and Final year will be meant for on job training and Pre Degree attachment at different sub specialty areas in attached hospital which will be distributed as under:-

Eight Courses of Practical Working with Six Week Blocks

- | | |
|-----------------------------------|-----------|
| 1. Primary Eye Care (Refraction) | (6 Weeks) |
| 2. Low Vision | (6 weeks) |
| 3. Contact Lenses | (6 Weeks) |
| 4. Orthoptics | (6 Weeks) |
| 5. Pediatric Optometry | (6 Weeks) |
| 6. School Screening and Out Reach | (6 Weeks) |
| 7. Diagnostic Equipments Unit | (6 Weeks) |
| 8. Research / Thesis | (6 Weeks) |

AIMS & OBJECTIVES

The main objectives of this four years degree program in optometry and Orthoptics is:-

- To introduce a four Years bachelor Program in Optometry and Orthoptics, and provide students the opportunity to have a well structured training program in Optometry.
- To obtain upto date knowledge for functions and recent advances in Optometry and Orthoptics.
- To alienate the shortage of trained Ophthalmic Midlevel Personnel and to focus on Human Resource Development.
- To provide clinical attachment for trained Ophthalmic Midlevel Professionals in both Private and public hospitals in the Country.
- To establish the Institutionalized training in the field of Optometry and Orthoptics at par with International level.
- To have International collaboration with well recognized Institutions in respective disciplines for developing the program, and postgraduate fellowship training in Optometry and Orthoptics.

RECOMMENDED READING MATERIAL

Some of the recommended reading books are as under:-

- Fundamental and Basic of Ophthalmology; 2005 AAO
- Anatomy of the Eye (Snell's)
- Optics and Refraction; 2005 AAO
- Pediatric Ophthalmology and Strabismus Squint Section (2005 AAO)
- Basic Refraction techniques;
- Duke Elder; Practice of Refraction
- Primary Eye Care procedures
- Management of Strabismus and Amblyopia; John A Pratt Jhonson, Geraldine Tillson
- Visual problems in Childhood by Terry Buckingham
- Clinical Orthoptics
- Duane's Ophthalmology (Squint Section)
- Pediatric Ophthalmology by Kenneth Wright
- Optometric management of Visually Handicapped by Helen Farrall
- IACLE 10 - Courses of Contact lenses

ASSESSMENT & EXAMINATION

ASSESSMENT:

All Courses in each year of the course will be examined and annual examination will be conducted for the syllabus covered during the Year. There will one annual examination each Year and final examination after 4th Year.

- ❖ Continuous Assessment (Monthly and Quarterly)
- ❖ Course work
- ❖ Annual Examination
- ❖ Practical / Viva / Log Book / Research work

CONTINUOUS ASSESSMENT

This is an evaluation of performance in assignment and/or test at interval of one month/ one quarter during the full period of training. The topic and syllabus covered during the period will be included in the assessment.

COURSE WORK:

1. During the course, the students shall be required to complete achievement record file / Log book in the final Year that will include different case studies in the sub specialty area. Normally this work is done during the practical sessions / Clinical attachments in different clinics of the course in out patient department.
2. In the Final year (4th year) a candidate or a group of candidate (not more than three) will select a topic dully approved by Board of Studies in Allied Health Sciences. The completed research or group work will be evaluated in the prescribed manner.

QUALIFICATION:

On successful completion of examination the University of Health Sciences will award the degree for the course.

PLAN OF STUDY

Duration of Study = 4 Years

YEAR- I***Term I:***

- ❖ Course 101: Anatomy of the Eye
- ❖ Course 102: Physiology of the Eye
- ❖ Course 103: Physical Optics
- ❖ Course 104: Geometrical Optics
- ❖ Course 105: Computer & Communication Skills
- ❖ Course 106: Visual Optics-Basic

Term II:

- ❖ Course 105: Computer & Communication Skills
- ❖ Course 107: Instrument Optics
- ❖ Course 108: Physiological Optics 1
- ❖ Course 109: Clinical Diseases
- ❖ Course 110: Visual Optics – Applied
- ❖ Course 111: Physiological Optics – 2

YEAR - II

Term I:

- ❖ Course 201: Clinical Diseases
- ❖ Course 202: Ophthalmic Dispensing
- ❖ Course 203: Systemic Diseases and Neuro Ophthalmology
- ❖ Course 204: Ophthalmic Pharmacology

Term II:

- ❖ Course 205: Orthoptics & Squint
- ❖ Course 206: Contact Lenses
- ❖ Course 207: Low Vision
- ❖ Course 208: Clinical Optometry and Examination

YEAR - III

Term I:

- ❖ Course 301 Orthoptics & Squint
- ❖ Course 302: Contact Lenses
- ❖ Course 303: Low Vision
- ❖ Course 304: Clinical Optometry and Examination
- ❖ Course 305: Occupational Optometry

Term II:

- ❖ Course 305: Occupational Optometry
- ❖ Course 306: Public Health
- ❖ Course 307: Pediatric Optometry
- ❖ Course 308: Diagnostic Instruments Course

YEAR – IV

(Pre Degree Attachment / Research work):

Attachment of Students in the following area's for Practical learning / completion of Log Book / Research work

20 cases in each subspecialty area on a log book will be done along with research work in the mentioned submitted and approved topics on commencement of 4th Year.

Eight Courses of Practical Working with Six Week Blocks in each area divided in two final terms:-

Term I:

1. Course 401: Primary Eye Care (Refraction)
6 Weeks Attachment
2. Course 402: Low Vision & Rehabilitation Centre
6 Weeks Attachment
3. Course 403: Contact Lenses
6 Weeks Attachment
4. Course 404: Orthoptics
6 Weeks Attachment

Term II:

5. Course 405: Pediatric Optometry
6 Weeks Attachment
6. Course 406: School Screening and Out Reach
6 Week Attachment
7. Course 407: Diagnostic Equipments Unit
6 Weeks Attachment
8. Course 408: Research / Thesis
6 Weeks

Note: Each term shall be of 6 months duration.

DESCRIPTION OF COURSE / SYLLABUS

Year 1:

Course 101: ANATOMY OF THE EYE

To provide the essential background in Eye anatomy. The course will provide the essential background to the anatomy of the human visual system, including eye and brain with emphasis on Anatomy of first to seventh cranial nerve. The students will be given practical demonstration in the Lab and Nursing Tutor room on different parts and Labs. Dissection of the Animal eyes will also be conducted to explained elaborately each part of the eye.

Course 102: PHYSIOLOGY OF THE EYE

To provide the essential background in Eye functioning and Mechanism of the eye in detail. The course will provide the essential background to the visual functioning and physiology of the human visual system, including eye and brain.

Course 103: PHYSICAL OPTICS

To give a solid theoretical underpinning of geometrical and physical optics. In terms of geometrical optics, the course spans the full range of refractive devices from simple thin lenses to reduced (Gauss) systems, and is taught in terms of unifying vergence equations. A similar approach is taken with reflecting surfaces. In the physical optics session, the wave and particulate theories of the nature of light are used to explain a variety of physical phenomena. In the final lectures of the course, the optical principles discussed earlier in the course are used to underpin an overview of several modern medical imaging technologies that are relevant to optometric practice in the 21st Century.

Course 104: GEOMETRIC OPTICS

To give a solid theoretical underpinning of geometrical and physical optics. In terms of geometrical optics, the course spans the full range of refractive devices from simple thin lenses to reduced (Gauss) systems, and is taught in terms of unifying vergence equations. A similar approach is taken with reflecting surfaces. In the physical optics session, the wave and particulate theories of the nature of light are used to explain a variety of physical phenomena. In the final lectures of the course, the optical principles discussed earlier in the course are used to underpin an overview of several modern medical imaging technologies that are relevant to optometric practice in the 21st Century.

- Discussion of accommodation and convergence relationships
- Presbyopia and the optical provisions for Presbyopia patients

SECOND YEAR

Course 201: CLINICAL DISEASES

The course continues from the basis of First year lectures on clinical diseases. This will cover the most of the eye diseases relevant to the Posterior segment of the eye. The emphasis would be made on proper signs and symptoms of these relevant diseases. Emphasis is placed upon the advanced optometric management of these diseases. In some instances, education beyond current optometric practice is introduced in an effort to prepare the students for different clinical challenges that could appear in this ever-changing profession. Furthermore, the Course intends to give the student the necessary knowledge for their future postgraduate assessments, and Optometrist / Orthoptics role in eye care services.

Course 202: OPHTHALMIC DISPENSING

This Course continues from the second year Ophthalmic Lenses course and gives theory and practical instruction in more advanced types of ophthalmic lenses and optical appliances, in preparation for the third year clinical dispensing sessions. An introduction is also given to low vision aids, theory and practical.

This Course introduces the optical principles of ophthalmic lenses, and the properties of spectacle lenses and frame materials. The course will cover both the theoretical properties and practical manipulation of basic forms of single vision and bifocal spectacle lenses and provide an introduction to the practical considerations of dispensing spectacle lenses including progressive lenses and frames.

Course 203: SYSTEMIC DISEASES & NEUROOPHTHALMOLOGY

The optometrists are becoming increasingly involved in the diagnosis, management and treatment of patients suffering from a large variety of abnormal ocular conditions. Many of these disorders appear, however, as a direct consequence of some systemic disturbances. Moreover, treatment given for various eye conditions could have systemic side effects that should be recognized by optometrists. Therefore, education beyond current optometric practice could have a beneficial role in preparing students for clinical challenges that may appear in this

ever-changing profession. The purpose of this Course is to provide students with a basic understanding of the most common systemic diseases, and their relationship to the abnormal ocular conditions.

Course 204: OPHTHALMIC PHARMACOLOGY

The Course will extend the range of clinical and academic material presented in first and second year Clinical Optometry Courses by providing the basic and pharmacology and pharmaceuticals for the application of diagnostic and over-the-counter ophthalmic drugs in general clinical optometric practice. The material will provide a basis for understanding the therapeutic use of drugs in the treatment of external eye pathology and glaucoma. Relevant aspects of the law governing the sale and supply of ophthalmic drugs will be included together with aspects of ocular adverse reactions to systemic and ophthalmic medication. The Course will provide the clinical science principles of drug formulation and delivery and the relevance of these to the use of diagnostic drugs in final year clinical work. The Course will complement concurrent final year Courses that incorporate aspects of the treatment of external eye pathology and the treatment of glaucoma.

Course 205: ORTHOPTICS & SQUINT

The students will learn the basic terminologies in used of Orthoptics and diagnosis and management of common squint conditions. The course will cover the Binocular vision development and sensory and motor evaluation in Orthoptics management.

Further students will learn theoretical understanding of the clinical investigation, diagnosis and management options for patients suffering from a range of binocular vision anomalies and Squint.

Course 206: CONTACT LENSES

The students will learn the basic knowledge of contact lenses and basic concepts in fitting of contact lenses and its use. The course will cover the major area of contact lens management and practice.

To extend the range of clinical optometry work begun in second year Clinical Optometry and will cover methods of contact lens fitting. The Course will range of contact lenses presently on the market to correct refractive error including astigmatism and Presbyopia will be examined to allow Students to assess contact lenses both today and as they develop in the future.

Course 207: LOW VISION

To extend the range of clinical optometry practice introduced, with the aim of complementing of low vision care and its different aspects according to our country requirement. Low vision services are becoming existent and tertiary level and it will be good learning area for the students, and to build their carrier as Low Vision Practioner.

Course 208: CLINICAL OPTOMETRY & EXAMINATION

To develop primary optometric examination skills from foundations in clinical Optometry. The routine examination will be developed in preparation for work carried out in final year open clinics. The course will cover the general optometric practice and refractive management of the patients suffering from different types if refractive errors. The students will learn the examination techniques and approach to diagnose a visual problem.

THIRD YEAR

Course 301: ORTHOPTICS & SQUINT

To extend the range of clinical Orthoptics work begun in second year Primary Optometric Examination Course and further develop theoretical understanding of the clinical investigation, diagnosis and management options for patients suffering from a range of binocular vision anomalies and Squint. Students will know about the management of Diagnosis of squint conditions. Students will know and understand the anatomy and pathology of comitant, incomitant (paralytic and mechanical) and supranuclear defects of binocular status and their impact on binocular sensory status. Students will also have a theoretical understanding of related anomalies such as those associated with specific learning difficulties.

Course 302: CONTACT LENSES

To extend the range of clinical optometry work begun in second year Clinical Optometry and will cover methods of contact lens fitting its after care and the complications of contact lens usage. The course will cover also the special purpose lenses and Eye prosthesis for cosmetic purpose.

The students will learn the Optometric practice management of contact lens both today and as they develop in the future.

Course 303: LOW VISION

The Course will cover the other aspects of low vision rehabilitation and counseling services. The course will also provide the learning of blind services for the visually impaired and client's behavior. The limitation and complication of Low vision management will also be one of the areas to cover during the course.

Course 304: CLINICAL OPTOMETRY & EXAMINATION

To enhance the clinical skills taught in the second year of the Optometry course in Optometry and to practice them under professional supervision in unselected patients attending the general clinics of Vision Sciences. The major emphasis shall be on binocular balancing, combining objective and subjective refraction, accommodation and Presbyopia, near vision assessment, history and symptoms, assessment of coulometer balance and motility, pupil reactions.

Course 305: OCCUPATIONAL OPTOMETRY

After completion of this course the students shall

- Have an understanding of the ocular problems facing individuals the working and driving environment.
- Understand the various devices used for eye protection
- Be able to carry out basic theoretical calculations in order to design artificial lighting for buildings.
- Demonstrate the theoretical knowledge of the law in relation to the practice of optometry
- Understand the responsibilities of patient care.
- Understand the rights of the consumer of optical products and services
- Show knowledge of the operation of an optometric practice
- Demonstrate knowledge of professional ethics.

Course 306: PUBLIC HEALTH

The Course will provide the basic public health problem relevant to eye care services and the role of optometrist in the prevention of Blindness. This will cover the major vision threatening diseases in the region / country and government and International agencies policies in the prevention of particular diseases. Basically the course will be giving an outline to the Students for their role as a primary eye care practioner and prevention of blindness in the country.

Course 307: PEDIATRIC OPTOMETRY

The students will learn the Pediatric management of refractive errors and other visual problems. The students will also learn the dispensing aspects of glasses in children and critical management of different refractive eye conditions in Pediatric eye care like Amblyopia, Anisometropia, etc.

Course 308: DIAGNOSTIC INSTRUMENTS

The students will learn the use of diagnostic instruments and their basic principals. The aim of the course is to train these students in using different diagnostic instruments used in managing eye ailments like, Visual Field analyzers, A Scan, Biometry, Corneal Topography, Specular Microscope, etc.

FOURTH YEAR
(Pre Degree Attachments)

Primary Eye Care (Refraction): 6 weeks Attachment

During the course the Students will learn the basic art of refraction and will perform the independent refraction and primary eye care procedures in the out door patients department. During the course the students will complete the Log Book of their supervised refraction techniques.

Low Vision & Rehabilitation Centre: 6 weeks Attachment

During the course the Students will be given proper training exposure in the Low Vision Practical work. The Students will be given proper exposure in Low Vision clinic and counseling services for visually impaired in the Hospital premises. The students will complete their LOG book of Low vision cases during this course, which will be done under the supervision of Low Vision Department.

Contact Lenses: 6 weeks Attachment

The student will do their rotation of six weeks in contact lens clinic, for learning the fitting philosophies of contact lenses and their after care. The students will be given exposure in fitting of contact lenses and observing different complication with contact lens wear. The students will complete their contact Lens Log Book during the attachment in Contact lens clinic.

Orthoptics:**6 weeks Attachment**

During the course the students will work in the Orthoptics department and learn the practical implementation of Orthoptics services and patient care of having Orthoptics problems. The students will complete the Log Book during the clinical sessions.

Pediatric Optometry:**6 weeks Attachment**

During the course the Students will do their rotations in the Pediatric Optometry Department, where they will be given proper exposure in management of Children refractive problem. The Students will maintain the Pediatric Optometry Log Book during the Clinical attachment.

School Screening and Out Reach:**6 weeks Attachment**

The students will visit the school screening activity to learn about the refractive and primary eye care screening at the Villages and Tehsil level. Refractive screening at school level is one of the major area we can reduce the burden of Refractive blindness and an Optometrist has a major role. So the emphasis on the course would be to learn the ways to reduce this burden and learning their role of out reach. The students will complete their Log Book of School Screening activity during the out reach program.

Diagnostic Equipments Unit:**6 weeks Attachment**

Topography, Visual field analyzers has the major role in Visual management of different eye conditions and closely related to Optometric management of different eye conditions like Glaucoma, Keratoconus, Contact lens fitting, etc. Keeping in mind its importance in Optometric practice the candidate will go through a six week rotation in learning use and proper demonstration of these different diagnostic equipments.

Research / Thesis:**6 weeks Attachment**

The goal of a vision scientist is to understand how vision works. Whilst this is a difficult thing to achieve there is a wide variety of specialist investigative techniques at the vision scientist's disposal. This Course provides an introduction to our understanding of research work and learning about how to right an article and case reports and how to design a poster.

The students or a Group of students will choose a topic for doing their research approved by the Faculty of Optometry and Orthoptics and Board of studies. The research manuscript will be completed during the course and will be submitted to Pakistan Institute of Ophthalmology for their onward approval before appearing in the examination.

BLOCK SYLLABUS OF COURSE

Course 101: ANATOMY OF THE EYE

1. Anatomy (General Introduction)
2. Anatomy of the Eye Lid
3. Anatomy of the Cornea
4. Anatomy of the Sclera and its Openings
5. Anatomy of the Limbus and Conjunctiva
6. Anatomy of the Anterior Chamber
7. Anatomy of the Lacrimal Apparatus
8. Anatomy of the Extra – Ocular Muscles
9. Anatomy of the Skull & Orbit
10. Anatomy of the Uveal Tract
11. Anatomy of the Lens & Vitreous
12. Anatomy of the Retina
13. Anatomy of the Choroid
14. Anatomy of the Brain
15. Anatomy of the Optic Nerve & Tract
16. Anatomy of the Visual Cortex
17. Anatomy of the Visual Pathway
18. Anatomy of Cranial Nerves (I – VII)

Course 102: PHYSIOLOGY OF THE EYE

1. Normal Vision Development
2. Physiology of the Eye Lid
3. Physiology of the Cornea
4. Physiology of the Tear Film
5. Physiology of Lacrimal System
6. Physiology of Pupil & Reflexes
7. Motor Law's
8. Physiology of Aqueous Humour

9. Physiology of Lens Metabolism
10. Physiology of Accommodation & Convergence
11. Physiology of the Retina
12. Dark and light adaptation
13. Physiology of the color vision
14. Visual Pigments
15. Physiology of the Extra Ocular Muscles
16. Visual Pathway
17. Homeostatic Mechanism of the Eye
18. Immunity & Allergy
19. Tissue & Organ Transplant

Course 103: PHYSICAL OPTICS

1. Principles of Radiant Energy
2. Emission spectra and black body
3. Interference phenomenon
4. Thin films, lens coating (interference)
5. Polarization
6. Diffraction: light distribution in images
7. Color: Spectrum, primary, equations, incandescence
8. Luminance
9. Photometric principles, units, measurements
10. Color temperature
11. Photo-electric effect
12. Photo-chemical effect

Course 104: GEOMETRIC OPTICS

1. Reflection: Plane, spherical and parabolic mirror
2. Refraction: Refractive index, Refraction at plane and spherical surfaces
3. Spherical aberration
4. Vergence and surface power, reduced vergence and reduced thickness
5. Coaxial system of spherical surfaces
6. Critical angle, total internal reflection, fiber optics,
7. Prisms deviation dispersion and spectra
8. Magnification
9. Cylinder, sphere and toric surfaces
10. Back and front vertex power
11. Eye as camera
12. Optical characters of the eye

Course 105: COMPUTER & COMMUNICATION SKILLS

1. Fundamental of computer Concepts
2. Types of computer, Hardware, Software
3. Operating system
4. Components of windows
5. Windows as an Application
6. MS- Word
7. Creating a Document
8. Writing up a letter and applying all Format styles
9. Setting up Page for Printing
10. Printing process of a document
11. MS-Excel
12. Creating, Modifying, Renaming a Worksheet
13. MS-Power Point
14. Inter Net E- Mail
15. Networking

Course 106: VISUAL OPTICS (Basic)

1. Optical system of the eye, Schematic & reduced eye
2. Retinal image formation and size
3. Visual acuity and factors affecting it
4. Depth of focus
5. Emmetropia & ametropia
6. Spherical and astigmatic ametropia
7. Presbyopia
8. Refractive variations with age
9. Optics of Contrast Sensitivity
10. Binocular Vision

Course 107: INSTRUMENT OPTICS

1. Test Charts
2. Standard calculation of test charts
3. Trial case lenses and accessories in the Trial Box
4. Phoropter
5. Trial frame design
6. Retinoscope – types
7. Retinoscope – optics
8. Autorefractors – principles and use
9. Direct ophthalmoscope
10. Indirect ophthalmoscope
11. Comparison of direct & indirect Ophthalmoscope
12. Lensmeter
13. Slit-lamp optics
14. Slit lamp – methods of examination
15. Glare and Contrast Sensitivity testing
16. Potential Acuity Meter
17. Stereo tests

Course 108: PHYSIOLOGICAL OPTICS I

1. Problems of Ametropia
2. Retinoscopy
3. Subjective refraction
4. Balancing method of subjective refraction
5. Near vision tests & refraction
6. Tests for binocular vision
7. Keratometry
8. Routine eye examination
9. Accommodation – convergence relationship
10. Methods of accommodation & convergence measurement

Course 109: CLINICAL DISEASES

1. Diseases of the eye lids
2. Diseases of the Conjunctiva
3. Diseases of the Cornea
4. Diseases of the Cornea
5. Diseases of lens – Congenital anomalies
6. Cataract
7. Pupil Abnormalities
8. Glaucoma

Course 110: VISUAL OPTICS (Applied)

1. Corrective Lenses
2. Ocular and spectacle refraction
3. Convergence & divergence
4. Visual fields
5. Causes of refractive errors
6. Objective measurement of visual acuity
7. Uses of prisms
8. Optics of Low Vision Devices
9. Retinoscopy – Principles and methods
10. Heterophoria and heterotropia

Course 111: PHYSIOLOGICAL OPTICS – 2

1. Myopia
2. Hypermetropia
3. Astigmatism I –Simple
4. Astigmatism II –Compound
5. Aphakia and pseudophakia
6. Presbyopia
7. Prismatic corrections
8. Anisometropia
9. Near point and far point
10. Refractive consideration of near & far point

SECOND YEAR

Course 201: CLINICAL DISEASES

1. Glaucoma
2. Diseases of the Retina
3. Uveitis
4. Color Vision Defects
5. Important eye syndromes
6. Dry eye syndrome
7. Defects of the visual pathway
8. Visual cortex Problems
9. Cortical Blindness
10. Fundus examination & Optometric approach

Course 202: OPHTHALMIC DISPENSING

1. Ophthalmic Lenses, Types of lenses
2. Definitions – lenses and frames
3. Spectacle frame measurements
4. Lensmeter and I.PD measurements
5. Centration and decentration effective result
6. Spectacles tints
7. Vertex distance and vertex power
8. Best form spectacle frames and lenses.
9. Axis chart and its use in dispensing
10. Lensmeter types and use
11. Axis marking on Lensmeter
12. Tools, Lens powering spherical
13. Lens powering cylindrical
14. Bifocals, Bifocals fitting, Bifocals dispensing
15. Bifocals manufacturing
16. Special purpose lenses, Progressive Lenses
17. Different materials used in dispensing
18. Pediatric dispensing, Special consideration for pediatric dispensing
19. Prescription mistakes commonly made

20. Auto Edger (Types and Fitting Methods)

Course 203: SYSTEMIC DISEASES AND NEURO OPHTHALMOLOGY COURSE

1. Anatomy of the Brain (Review)
2. Cranial Nerves
3. Anatomy of the visual cortex
4. Visual pathway
5. Pupillary pathway
6. Congenital Diseases
7. Multiple Sclerosis
8. Myasthenia Gravis
9. Retinopathy of Prematurity
10. Albinisms
11. Double Elevator palsy
12. Trauma
13. Introduction to Genetics
14. Hereditary Eye Disorders
15. Hereditary Eye Disorders
16. Diseases (Sign & Symptoms)
17. Diseases (Sign & Symptoms)
18. Diseases (Investigations)
19. Diseases (Management & Counseling)
20. Cortical Blindness

Course 204: OPHTHALMIC PHARMACOLOGY

1. Introduction to ophthalmic pharmacology
2. Passages of ophthalmic drugs
3. Cycloplegics & mydriatics (mechanism of action)
4. Uses of cycloplegics & mydriatics, side effects
5. Antibiotics (introduction)
6. Antibiotics (types & uses)
7. Topical anesthetics, anti-allergic
8. Anti-glaucoma drugs

9. Steroids
10. Anti-inflammatory drugs
11. Adverse reactions and Side Effects – Anti Biotic Drugs
12. Adverse reactions and Side Effects – Anti Glaucoma Drugs, Beta Blockers
13. Adverse Reactions of other Ophthalmic Drugs
14. Diagnostic Stains: Fluorescein, Rose Bengal

Course 205: ORTHOPTICS & SQUINT

1. Basic Terminologies uses in Squint / Orthoptics
2. Binocular Single vision (sensory Requirements)
3. Binocular Single vision tests
4. Binocular Abnormalities
5. Anomolic Retinal Correspondence
6. Sensory Evaluation
7. Motor Evaluation
8. Cover test (Different Types and Methods)
9. Amblyopia
10. Esotropias – Congenital Esotropia
11. Characteristics of Esotropias
12. Accommodative Esotropia
13. Accommodation & Convergence AC / A ratio
14. Microtropia
15. Strabismus Convergence Acutus
16. Exotropias Types
17. Exotropias Management
18. A & V pattern + Penalization
19. Synoptophore
20. Hess screen

Course 206: CONTACT LENSES

1. Anatomy and Physiology of Cornea in relations to Contact Lens use
2. The History of Contact lenses
3. Cornea / Contact lens and Oxygen

4. Basic Contact lens Types
5. Indications and Contra Indication of Contact lens use
6. Contact Lens materials
7. Contact Lens Manufacturing
8. Optics of Contact lens
9. Silicon Hydrogel Lenses
10. Slit Lamp Biomicroscope
11. Slit Lamp examination of Contact lenses patients – Indicators and Findings
12. Astigmatism – Keratometer – Contact lenses
13. Corneal Topography: measurement and Significance
14. Contact lens verification
15. Introduction of Contact lens Fitting – Soft Lenses
16. RGP Lenses Fitting
17. RGP Fitting Patterns
18. Toric Lens Fitting
19. Overview of care and Maintenance – method of disinfection
20. Chemical Properties of contact lens care products
21. Contact Lens Deposits

Course 207: LOW VISION

1. Epidemiology of Low Vision – Definitions and Global Situation
2. Causes of Low Vision
3. Patients History & Interview – Assessment tests
4. Low Vision Assessment
5. Essentials Supplementary tests – Color Vision, Visual Fields
6. Visual Acuity
7. Magnification
8. Low Vision Devices – Types
9. EVD/EVP
10. Optical Devices for distance use – Telescopes & Filters
11. Optical Devices for near use – Magnifiers and their calculation
12. Electronic & High tech Low Vision Devices
13. Low Vision Enhancement system – Video Presentation
14. How to use Low Vision Devices

15. Environmental Modifications – Special considerations
16. Visual Training

Course 208: CLINICAL OPTOMETRY & Examination

1. Eye examination History & symptoms
2. Signs of diseases:
3. External examination
4. Methods of examinations
5. Approach & diagnosis
6. Case Studies
7. Case Studies
8. Case Studies
9. Case Studies
10. Case Studies
11. Case Studies
12. Case Studies

THIRD YEAR

Course 301: ORTHOPTICS & SQUINT

1. Tangent Screen
2. Duane's syndrome Type I
3. Duane's Syndrome Type II & III
4. Brown's Syndrome
5. Miscellaneous syndrome (Jaw Winking, Mobius, FOEM, etc.)
6. 3rd Nerve palsy
7. 4th Nerve palsy (Superior Oblique Myochemia)
8. 6th Nerve palsy
9. DEP
10. Dissociated Vertical Deviation (DVD)
11. Myasthenia Gravis
12. Multiple sclerosis
13. Gravis Disease
14. Nystagmus (Types)
15. Nystagmus (Management)
16. Prism Fusion Range
17. Investigations of Incomitance Squint
18. Trauma and Squint
19. Saccades Eye Movements
20. Practical Aspects of Orthoptics Management & Practice

Course 302: CONTACT LENSES

1. Contact lens related ocular complications Soft lens and their management
2. Contact lens related ocular complications RGP lenses and their management
3. Diagnosis and management of Dry Eyes in contact lens wear
4. Contact lens related eye Problems
5. Contact lens Aftercare
6. Fitting scleral lenses and an Ocular prosthesis
7. Business aspects of Contact lenses practice
8. Practice Management of Contact Lenses

9. Inventory of Contact Lenses

Course 303: LOW VISION

1. Low Vision Service Other Aspects of rehabilitation
2. Motivation and client's behavior
3. Complication and side effects
4. Services for the Blind
5. Orientation and Mobility Training
6. Braille
7. Practical Training of LV Management Case Studies
8. Practical Training of LV Management Case Studies
9. Practical Training of LV Management Case Studies of the Blind Patients
10. Practical Training of LV Management Case Studies of the Blind Patients

Course 304: CLINICAL OPTOMETRY & EXAMINATION

1. Internal eye examination
2. Management of patients (Routine)
3. Management of practice (Occupational)
4. How to run an optometric practice
5. Merits & demerits
6. Marketing

Course 305: OCCUPATIONAL OPTOMETRY

1. Visual task analysis
2. Visual anomalies
3. VDUs and vision screeners
4. Vision and aging
5. Vision and driving
6. Colour and colour coding
7. Ocular hazards
8. Protective eyewear and International Standards
9. Terminology and calculations in illumination
10. Lamps and lighting
11. The Optician's Act

12. Country Situation and Optometric Practice
13. Optometric bodies
14. Eye examination and dispensing
15. Referral
16. Record keeping and data protection
17. English law including introduction to European law
18. Employment and consumer legislation and negligence
19. International professional bodies in Optometry
20. Marketing Optometric practice
21. Management of Optometric practice
22. Finance in Optometric practice

Course 306: PUBLIC HEALTH

1. Primary eye Care introduction
2. Prevention of Blindness basic Concepts and trends
3. Measurement of diseases in the community
4. Situation Analysis of existing resources for the prevention of Blindness
5. Primary eye care management of cataract
6. Primary eye care management of glaucoma
7. Primary eye care management of diabetes
8. Primary eye care VA Deficiency
9. Primary eye care Refractive errors
10. Primary eye care Childhood blindness
11. Primary eye care Trauma
12. Primary eye care Vision threatening diseases
13. Primary eye care of RoP
14. Primary eye care of Retinoblastoma

Course 307: PEDIATRIC OPTOMETRY

1. Visual Assessment:
2. Pre Verbal Assessment
3. Verbal Assessment
4. Refraction:
5. Development of Refractive Error

6. Objective & Subjective methods
7. Pre Verbal Refraction
8. Verbal Refraction
9. Pediatric Low Vision:
10. Causes of Childhood Blindness – Need & Constraints
11. LV management in Children
12. Congenital Anomalies of the Eye:
13. Problems affecting the Optical management and Visual Outcome
14. Management Options
15. Pediatric Contact lenses & Dispensing & Screening:
16. Requirement & Management of the of Contact lenses in Children
17. Understanding the Indication and Contra Indication of Contact Lenses
18. Dispensing of Glasses to Children – Problems and care

Course 308: DIAGNOSTIC INSTRUMENTS

1. Visual Field Loss and Pattern
2. Equipment to assess Arc Perimeter
3. Humphrey automated perimeter
4. Goldman perimeter
5. Keratometer and its use
6. Corneal Topography
7. FFA
8. Biometry
9. Ultrasound
10. Fundus Photography
11. YAG Lasers
12. Bagline striated glasses, worth four dot test
13. Prisms, Fresnel prisms
14. Hess screen
15. Tangent screen
16. Synoptophore
17. Electro-physiological tests – VER, ERG, EOG

JOB DESCRIPTION OF OPTOMETRIST / ORTHOPTIST

After the successful completion of the program the candidate will be able to perform the following work in an Eye care or Independent set up:-

1. To Perform Refraction
2. To Dispense glasses
3. To Diagnose conditions leading to blindness
4. To be able to do a proper referral to an Ophthalmologist
5. To do Low vision assessment
6. To Dispense low vision devices
7. To provide training in using Low Vision Devices
8. To dispense contact lenses and be able to diagnose and manage these patients
9. To be able to perform Diagnostic tests i.e. Visual Fields, Tangent Screen, Hess's
10. To do Vision assessment of Infants and children.
11. To perform refractions in children
12. To do Orthoptics / Squint assessment
13. To give the plan of surgical squint correction