

Diploma in Ophthalmic Technology

I year DOT

1. Anatomy of the Eye and Orbit

Human anatomy with special references to special senses, parts of the body and organs of special senses, skull bones, demonstration model – To be taught in Anatomy Department.

Structure of eyeball – Revision

2. Physiology of the Eye:

Physiology of vision including colour vision Ishihara's chart, Lantern test, Snellen's chart, Ocular movement, Binocular vision, perimetry accommodation, Convergence, formation and circulation of aqueous humor and vitreous humor, lacrimal fluids.

3 classes to be taught in physiology department.

3. Physical Optics and Physiological Optics:

Laws of Refraction and reflection – spherical and cylindrical optics of human eye and refractive errors. Geometrical and physiological optics Myopic, Hypermetropia, Astigmatism, Prebyopia, Aphakia and their correction, Optical aberrations of ophthalmic glasses, Prisms – To be taught by a senior refractionists.

4. Practice of Refraction:

Various components of vision, principles of testing for visual acuity, demonstration of distant vision, near vision and colour vision (Ishihara). Lecture demonstration on measurement of IPD, fitting and adjustments of spectacles (Types of lenses, centering)

Lecture demonstrations on measurement of accommodation and convergence. Ophthalmic lenses, Decentering bifocals, segment heights and transposition of lenses. Contact lenses uses and abuses. Checking of spectacles, protective glasses and L.V.A, A scan biometry, Keratometry.

5. Retinoscopy and Subjective Testing:

Estimating optical refractive errors including prescription of glasses

6. Common Eye Diseases:

- Types of Conjunctivitis, Trachoma
- Corneal ulcers and opacities
- Iritis
- lids and Lacrimal sac and eye emergencies
- Chemical and radiation injuries including prevention first aid treatment
- Mechanical injuries, prevention, first aid & treatment

7. Cataract:

- Types, diagnosis, treatment, followup, magnitude, epidemiology

8. Glaucoma:

- Recognition, Tonometry
- Diagnostic methods and treatment, follow-up

9. Squint (Optional):

- Classification and measurement cover test, Maddox rod, Maddox wing and diplopia charting of synoptophore and exercises.
- Amblyopia with special emphasis on prevention.
- Assessment of binocular vision

10. Systemic Disorders:

- Malnutrition and Vitamin A deficiency
- Ocular changes due to Diabetes and Hypertension

11. Microbiology:

- Introduction to various organisms (bacteria, virus and fungi)
- Infections and its prevention routes, cross – infection, antisepsis and asepsis
 - To be taught in Microbiology department

12. Clinical Pathology:

- Examination of urine, cross – albumin and sugar.
 - to be taught in Pathology department

13. Pharmacy:

- Various methods of administration of drugs in Ophthalmic diseases, e.g., drops, ointments, ocuserts (different dosage forms)
- Preparation and dispensing of various ophthalmic drugs including fluorescein, mercurochrome, sodium sulphacetamide, homatropise, atropine, pilocarpine and antiblotic drugs.
- Various side reactions of common ophthalmic drugs and drug abuses. Anesthetics and Antibiotics, acetazolamide and steroids.
- Miotics and mydriatics.
- Local anaesthetics used in eye.
- Drugs used in glaucoma, local systemic
- Anti inflammatory analgesic drugs
 - Salicylates
 - Diclofenac
 - Ibuprofen
- Anti inflammaotory

- Steroids: Hydrocortisone, Betamthasone, Dexamethasone, Prednisolone

Treatment of Glaucoma:

1. Miotic – Pilocarpine
2. Beta blocker – Timolol
3. Carbonic anhydrase inhibitor>>Acetazolamide
4. IV – mannitol

- Anti viral drugs used in Ophthalmology
- Antifungal drugs used in Ophthalmology
 - to be taught in Pharmacology department

Detailed curriculum

Year I

TOPIC	PERFORMANCE OBJECTIVE & SKILLS	PROCESS
<p>I) ORIENTATION TO MEDICAL ETHICS, PROFESSIONAL BEHAVIOR, MEDICAL AND OPHTHALMIC TERMINOLOGIES.</p> <p>INSTRUCTIONAL OBJECTIVES :</p> <ol style="list-style-type: none"> 1. To acquire a concept of medical ethics and professional behavior 2. To understand the importance of ophthalmic assistants 3. To become familiar with medical terminologies 4. Attitude and General behavior with the patients (Care, Compassion and Commitment) 		
A) Clinic and Personnel Functions	1. Identify the general responsibilities of Ophthalmic Medical personnel	TEACHING METHODOLOGY
B) Medical Ethics	<ol style="list-style-type: none"> 1. Maintain Patient confidentiality 2. Documentation skills (coding, scribe /charting) 3. Informed consent process 4. Identify professional actions and consequences of performing unprofessionally 5. Describe quality assurance processes (e.g., chart audit) 	
C) Communication Skills	<ol style="list-style-type: none"> 1. Support supervision, training and self monitoring 2. Communicate effectively with co-workers, family of the patients and demonstrate good interpersonal relationship skills 3. Notify doctors of dissatisfied patients to address the problems 4. Learning of functional English 5. Attitude 	

TOPIC	PERFORMANCE OBJECTIVE & SKILLS	PROCESS
D) Medical and Ophthalmic Terminology	*-- 1. Spell, define and use medical terms and ophthalmic terminologies correctly 2. Identify acceptable abbreviations (specifically related to clinic practice)	
II) GENERAL AND OCULAR ANATOMY, PHYSIOLOGY AND BIOCHEMISTRY		
INSTRUCTIONAL OBJECTIVES		
1) To have practical sessions to develop skills for measurement and recording of blood pressure, pulse, temperature and respiratory rate. 2) Describe the basic functions and processes of each body system 3) Describe the function and structure of ocular system. 4) To acquire knowledge about various biochemical investigations relevant to ophthalmology		
General and Ocular Anatomy and Physiology	1. Human Anatomy and Physiology a) Cellular System b) Skeletal System c) Respiratory system d) Cardiovascular system e) Endocrine System f) Nervous system g) Excretory System h) Digestive System i) Reproductive System 2. Ocular System a) Adnexa and orbit b) Extra ocular muscles c) Visual pathway d) Cranial nerves III, IV, V, VI and VII e) Lids and glands f) Lacrimal system and tears g) Conjunctiva h) Cornea and sclera i) Anterior chamber and angle j) Aqueous humor k) Lens l) Uvea m) Retina and vitreous n) Optic nerve o) Circulation of the eye (ocular blood supply) p) Biochemical investigations relevant to ophthalmology	TEACHING METHODOLOGY 1) Lecture/Discussions Audiovisuals PRACTICAL SESSION 1. Observation of Measurement and recording of: a. Blood pressure b. Pulse c. Urine and blood sugar c. Temperature d. Respiratory rate e. Perform cardiopulmonary resuscitation (CPR) procedures 2. Practically doing the above with colleagues 3. Doing the above with patients under supervision STUDENT ASSESMENT Written and oral tests
III) ORIENTATION TO WARD, OUTPATIENT DEPARTMENT		
INSTRUCTIONAL OBJECTIVE To acquire an orientation to the inpatient ward, outpatient department (OPD),		

TOPIC	PERFORMANCE OBJECTIVE & SKILLS	PROCESS
Orientation to Ward, Outpatient Department	Introduction to: 1. Inpatient ward 2. Outpatient department	TEACHING METHODOLOGY Lecture/Discussion Practical session Observation to Basic Ophthalmic procedures : <ul style="list-style-type: none"> • History taking • Vision testing • Instillation of eye drops • Dressing preparation • Bandage tying and untying • Bedmaking • Care of admitted patient

IV) FUNDAMENTALS OF OPHTHALMIC INSTRUMENTS & EQUIPMENT AND THEIR MAINTENANCE

INSTRUCTIONAL OBJECTIVES

1. To acquire a knowledge of ophthalmic instruments and equipment
2. To develop skills for usage of ophthalmic instruments and equipment

Introduction to ophthalmic instruments and equipment:	1. Ophthalmic instruments and equipment: <ol style="list-style-type: none"> a) Trial sets and frames b) Retinoscope c) Lensometer d) Tonometer e) Slit lamp f) Ophthalmoscope g) Perimeter h) Keratometer i) Lensometer j) A-scan 	TEACHING METHODOLOGY Lecture/Discussion Practical session
	2. Equipment Maintenance <ol style="list-style-type: none"> a) Change batteries/bulbs in ophthalmic instruments b) Maintain and calibrate ophthalmic equipment as per manufacturer recommendation c) Maintain emergency equipment d) Clean lenses and prisms e) Order and maintain medical supplies Inventory f) Order and maintain patient education materials inventory g) Maintain exam equipment 	

TOPIC	PERFORMANCE OBJECTIVE & SKILLS	PROCESS
V) OPTICS AND REFRACTION		
INSTRUCTIONAL OBJECTIVES <ol style="list-style-type: none"> 1. To develop knowledge of optics and refraction 2. To develop skills for vision testing and recording lens power 		
Optics and refraction	<ol style="list-style-type: none"> 1. Introduction to light 2. Reflection and refraction 3. Refractive errors 4. Optics of refractive errors 5. Eye as an optical instrument 6. Lenses and their combination 7. Optical aberrations of the eye 	TEACHING METHODOLOGY Lecture/Discussion Observation of refractions in clinics
BASIC SKILLS		
Visual testing (Distance and near)	<ol style="list-style-type: none"> 1. Test and record visual acuity using a distance visual acuity chart 2. Test and record visual acuity on preliterate, illiterate, non-verbal or foreign language patients 3. Test and record visual acuity using the pinhole occluder 4. Test and record visual acuity using Allen figures or picture tests 5. Test and record visual acuity for low vision patients 6. Test and record near vision 	
VI) PHARMACOLOGY		
INSTRUCTIONAL OBJECTIVES <ol style="list-style-type: none"> 1) Describe the advantages and disadvantages of various methods of drug delivery, including drops, ointments, sustained-release medications, injectable medications and systematic medication. 2) Describe the components of prescription 3) Instill ophthalmic drops and ointments 4) Describe and demonstrate the correct method of applying drops 		
Pharmacology	Commonly used ocular drugs Indications, contraindications, potential side effects, dosage, route of administration. <ol style="list-style-type: none"> a) <u>Anti-infective agents</u> Anti bacterials Anti virals Anti fungals Anti parasitic b) Allergy medications c) Anti anesthetics d) Diagnostic agents e) Glaucoma medications 	TEACHING METHODOLOGY Lecture/Discussions Audiovisuals PRACTICAL SESSION a) Instill eye drops b) Irrigation of the eye STUDENT ASSESSMENT Written and oral tests

TOPIC	PERFORMANCE OBJECTIVE & SKILLS	PROCESS
	f) Mydriatics and cycloplegics g) Non steroid anti inflammatory drugs h) Ocular lubricants i) Osmotics j) Steriods k) Nutritional supplements l) Anti-neovascular drugs	
<p>VII) SYSTEMIC DISEASES</p> <p>INSTRUCTIONAL OBJECTIVES To acquire a knowledge of systemic disease</p>		
Systemic Diseases	1. Study of ocular manifestation of the following systemic diseases <ol style="list-style-type: none"> a) Nutritional deficiencies b) Diabetes mellitus c) Thyroid diseases d) Auto immune/inflammatory diseases e) Infectious diseases (Trachoma HIV/Aids) f) Cardiovascular disease g) Neurological disorders h) Cancer (Primary & metastatic) 	<p>TEACHING METHODOLOGY Lecture/Discussions Audiovisuals</p> <p>STUDENT ASSESSMENT Written and oral tests</p>
<p>VIII) INTRODUCTION TO OPERATION THEATRE</p> <p>INSTRUCTIONAL OBJECTIVE To introduce the candidate to the operation theatre</p>		
<p>IX) ORIENTATION TO COMMON EYE DISEASES</p> <p>Instructional Objectives To acquire a knowledge of common eye diseases</p>		
Common eye diseases:	<ol style="list-style-type: none"> a) Differentiate between inflammation and infection b) Study on common eye conditions Common lid abnormalities: stye, chalazion, ptosis, blepharitis, ectropion, entropion, trichiasis Conjunctiva: conjunctivitis, red eye, pterygium pinguecula, foreign body c) Cornea : foreign body, epithelial defects, ulcer, d) Lens: cataract e) Identify the various types of glaucoma f) Uveitis g) Vitamin A deficiency 	<p>TEACHING METHODOLOGY Lecture/Discussions Audiovisuals</p> <p>STUDENT ASSESSMENT Written and oral tests</p> <p>PRACTICAL SESSION Examination of the eye using torch</p>

TOPIC	PERFORMANCE OBJECTIVE & SKILLS	PROCESS
	h) Orbit i) Trauma j) Extra ocular muscles k) Cranial nerves	
X) INTRODUCTION TO COMPUTERS INSTRUCTIONAL OBJECTIVE To acquire necessary knowledge of computers		
Introduction to Computers and English	Introduction to computers	TEACHING METHODOLOGY Lecture/Discussions PRACTICAL SESSION

EXIT COMPETENCIES IN YEAR I

1. Will be able to receive patients
2. Measure visual acuity
3. Check vital parameters
4. Instill drops in the eye
5. Will be able to examine the eye and perform tonometry
6. Enter data
7. Perform retinoscopy in simple case
8. Check for lacrimal patency
9. Will be able to refract and prescribe
10. Elicit patient information

Time Schedule

	I Year
Theory Sessions	200 hrs.
Practical Sessions	750 hrs.
Seminars	20 hrs.
Group Discussions	20 hrs.
Assessment	20 hrs.
Revision	40 hrs.
Total	1050 hrs

Examination Pattern

Theory (3 hrs. duration)

	Board Exam	Internal Assessment	Total
Paper I. A A. Anatomy of Eye Adrexa, Orbit B. Physiology of Eye C. Physical and physiological optics D. Practice of Refraction (as per syllabus from 1 to 5 chapters E.	20 } 20 } 90 20 } 30 }	10	100
Paper II A A. Common Eye Diseases (as per syllabus from 6 to 10 Chapters) B. Ocular pathology, Microbiology and Pharmacology (as per syllabus from 11 to 13 chapters)	45 } 45 } 90	10	100

PRACTICALS

	Board Exam	Int. Assessment	Viva voce	Total
Practical I	80	10	10	100
Practical II	80	10	10	100
Log book assessment	100	-	-	100

Diploma in Ophthalmic Technology

II year DOT

Paper – I

Nursing Care of Ophthalmic Patients:

- Pre – operative preparation. Cutting of lashes
- Preparation of eye and ocular bandaging
- Bed making and lyaing trolley for dressing

Ophthalmic Instruments:

- Name uses and maintenance of surgical instruments
- Laying of trolley for surgery – cataract glaucoma
- Pterygium, chalazion, entropion and squint

Maintenance of Ophthalmic diagnosis equipment:

- Trail set, slit lamp, focimeter
- Synoptophore, Keratometer, Retinoscope and Ophthalmoscope
- Uses of lensometer and neutralization of lenses
- Fitting and checking of spectacles
- Maintenance of tonometer

Ocular surgery, fundamentals of Aseptic Technique:

- Asepsis, Fumigation, Sterilization of instruments, making of swab sticks, pads and packing of drums and autoclaving.

Minor surgical procedures:

- Installation of eye drops and subconjunctival injections etc
- Fomentation, irrigation, Epilation, Syringing
- Setting up of IV drips, Pyle’s tube and enema

Paper – II

Emergency Resuscitation:

- General and Ophthalmic

Records and Statistics:

- OPD, IPD surgical formats. Disease index, alphabetic index, numerical index, major and minor surgical records, rates and ratios. ICD – 10 consent formats. Basic epidemiology, demography and statistics
 - To be taught in Medical records department

Community Eye health update:

- National programme for control of blindness
- Screening of school children for eye problem
- Survey methodology
- Functioning of eye bank (Collection, preservation, transportation and publicity)
- Rehabilitation of blind and vocational training for blind
 - To be taught in Community Medicine Department

Basics of Eye Health Education:

- Need and methods
- Target group and content
 - To be taught in Community Medicine Department

Laboratory and hands on exercises in Medical College:

- Vision test, lenses, spherical, cylindrical, prisms and neutralization
- Common eye diseases – prevention and recognition
- Nursing care
- Minor surgical procedures

YEAR II

TOPIC	PERFORMANCE OBJECTIVE	PROCESS
I) REFRACTION		
INSTRUCTIONAL OBJECTIVE		
1. To acquire knowledge of refraction and refractive errors		
2. To acquire skills in performing retinoscopy		

Optics and refraction	<ol style="list-style-type: none"> 1. Retinoscopy 2. Subjective refraction 3. Myopia 4. Hypermetropia 5. Astigmatism 6. Aphakia 7. Pseudophakia 8. Muscle balance 9. Binocular single vision 10. Anisometropia & aniseikonia 11. Accommodation and convergence 12. Phorias 13. Tropias 14. Amblyopia 15. Nystagmus 	<p>TEACHING METHODOLOGY Lecture/Discussions Audiovisuals</p> <p>PRACTICAL SESSION Perform retinoscopy:</p> <ol style="list-style-type: none"> 1. Myopia 2. Hypermetropia 3. Astigmatism 4. Aphakia
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SKILLS

II) CLINICAL OPTICS (REFRACTOMETRY, RETINOSCOPY, REFINEMENT)

BASIC SKILLS

1. Identify refractive errors: hyperopia, myopia, astigmatism, presbyopia
2. Describe accommodation and its relation to age

ADVANCED SKILLS

1. Measure refractive error with an automated refractometer
2. Perform and record retinoscopy
3. Refine refractive error using phoropter or trial lenses in +/- cylinder
4. Adhere refractometry techniques : fogging, duochrome, binocular balance
5. Measure vertex distance
6. Perform and record transposition
7. Calculate and record spherical equivalence
8. Describe spectacle prescription components
9. Determine near add (bifocal, trifocals, multifocal)

TOPIC	PERFORMANCE OBJECTIVE	PROCESS
<p>III) COMMON EYE DISORDERS</p> <p>INSTRUCTIONAL OBJECTIVE To acquire knowledge of common eye disorders and their identification</p>		

TOPIC	PERFORMANCE OBJECTIVE	PROCESS
Common eye disorders	<ol style="list-style-type: none"> 1. Lids 2. Lacrimal apparatus 3. Orbit 4. Conjunctiva, limbus 5. Cornea, sclera 6. Uvea 7. Glaucoma 8. Lens 9. Retina 10. Trauma 	<p>TEACHING METHODOLOGY Lecture/Discussions Audiovisuals</p> <p>PRACTICAL SESSION</p> <ol style="list-style-type: none"> a) Examination of the eye using a penlight b) Identification of common eye diseases c) Apply and remove eye dressings and shields
<p>IV) OUTPATIENT DEPARTMENT (OPD) INSTRUMENTS</p> <p>INSTRUCTIONAL OBJECTIVE To acquire knowledge of OPD instruments To develop skills for usage of OPD instruments</p>		
Outpatient Department (OPD) Instruments	<ol style="list-style-type: none"> 1.Synaptophore 2.RAF ruler 3.Maddox rod 4.Maddox wing <p>(EXPOSE TO THESE EQUIPMENTS IN SECOND Semester and have them use it in 3rd semester)</p>	<p>TEACHING METHODOLOGY Lecture/Discussions Audiovisuals</p> <p>PRACTICAL SESSION</p> <ol style="list-style-type: none"> a. Use of instruments: <ol style="list-style-type: none"> i. RAF ruler ii. Maddox rod and wing iii. Synaptophore b. Cover/uncover test
<p>V) ADMINISTRATIVE DUTIES AND MAINTENANCE OF MEDICAL RECORDS</p> <p>INSTRUCTIONAL OBJECTIVE To acquire knowledge of data entry and maintenance of medical records</p>		
Administrative duties and Maintenance of Medical Records	<ol style="list-style-type: none"> 1. Data entry 2. Maintenance of medical records 3. Call or fax patient prescriptions to pharmacy 4. Co ordinate patient flow 5. Answer phones 6. File, locate and copy patient charts (Scan, if electronic medical record - EMR) 	<p>TEACHING METHODOLOGY Lecture/Discussions</p> <ol style="list-style-type: none"> 1. Date Entry 2. Maintenance of medical records

TOPIC	PERFORMANCE OBJECTIVE	PROCESS
	7. Schedule appointments	
<p>VI) COUNSELING FOR THE OP</p> <p>INSTRUCTIONAL OBJECTIVE 1. To acquire counseling knowledge and skills for OP</p>		
Counseling	<ol style="list-style-type: none"> 1. Challenged – Visually & hearing 2. Explain the effect of dilation prior to giving drops 3. Counsel and educate patient on ocular / systematic medications, tests and procedures 4. Provide patient education on ocular diseases 5. Provide and assist with patient medication assistance programs about eye problems 6. Respond to and properly document patient phone calls 7. Provide patient education on testing procedure and results 	<p>TEACHING METHODOLOGY</p> <ol style="list-style-type: none"> 1) Lecture/Discussions 2) Focused group discussions 3) Practicing under guidance <p>PRACTICAL SESSION</p>
<p>VII) HISTORY TAKING AND EXAMINATION OF THE EYE</p> <p>INSTRUCTIONAL OBJECTIVE To acquire knowledge in history taking and Examination of the Eye</p>		
History Taking and Examination of the Eye	<ol style="list-style-type: none"> 1. History taking and recording <ol style="list-style-type: none"> a. Elicit chief complaint or symptoms b. Classify symptoms according to severity 2. Record medical and surgical history 3. Record family history 4. Record social history 5. Examination of the eye 6. Administer first aid for acute ophthalmic drug reactions and emergencies (e.g. chemical burns) 7. Evaluation of color vision, visual field, and ocular motility 	<p>TEACHING METHODOLOGY</p> <ol style="list-style-type: none"> 1. Lecture/Discussions 2. Focused group discussions <p>PRACTICAL SESSION</p>
<p>VIII) EYE CAMP SET UP</p> <p>INSTRUCTIONAL OBJECTIVE To develop knowledge for set up of an eye camp</p>		

TOPIC	PERFORMANCE OBJECTIVE	PROCESS
Eye Camp Set Up	1. Orientation for set up of an eye camp	TEACHING METHODOLOGY 1. Lecture/Discussions 2. Focused group discussions PRACTICAL SESSION Participating in various areas of the eye camp
IX) COMMON MEDICAL AND OPHTHALMIC EMERGENCIES INSTRUCTIONAL OBJECTIVE To acquire knowledge about common medical and ophthalmic emergencies		
Common Medical and Ophthalmic Emergencies	1) Vasovagal attack 2) Hypoglycemia 3) Foreign body 4) Chemical injury 5) Ocular trauma 6) Acute visual loss	TEACHING METHODOLOGY Lecture/Discussions Audiovisuals Focused group discussion
X) COMMUNITY OPHTHALMOLOGY A) INSTRUCTIONAL OBJECTIVES 1. To have an understanding of the National Eye Care Programs and Vision 2020 2. To acquire knowledge of diseases of the eye related to industrial hazards and nutrition 3. Identify the local resources		
Community Ophthalmology	1. Magnitude of blindness a) Definition of legal blindness (Govt & WHO) b) Causes of reversible and irreversible diseases 2. School screening 3. Community-based rehabilitation 4. Community eye care 5. National Eye Care Programs & Vision 2020 6. Industrial hazards 7. Nutrition and eye disease	TEACHING METHODOLOGY Lecture/Discussions Audiovisuals Focused group discussion STUDENT ASSESSMENT Written and oral tests
Microbiology	1. Study of microorganisms a) Bacterium b) Fungus c) Protozoa	TEACHING METHODOLOGY Lecture/Discussions Audiovisuals PRACTICAL SESSION

TOPIC	PERFORMANCE OBJECTIVE	PROCESS
	d) Virus 2. Study of common pathways of disease transmission	Assist in collection of conjunctival and corneal specimens Clinical antisepsis and sterilization techniques STUDENT ASSESSMENT Written and oral tests
XI) PRINCIPLES OF STERILIZATION AND ASEPSIS INSTRUCTIONAL OBJECTIVE To acquire knowledge of sterilization and asepsis		
Principles of Sterilization and Asepsis	1. Waste disposal 2. Handling of sterile supplies	TEACHING METHODOLOGY Lecture/Discussion Waste disposal Handling sterile supplies Handling sutures, intraocular lenses PRACTICAL SESSION
XII) SURGICAL INSTRUMENTS INSTRUCTIONAL OBJECTIVE To acquire knowledge of instruments required in various ocular surgeries		
Surgical Instruments	Instruments required in the following surgeries: 1. Cataract 2. Minor procedures 3. Glaucoma 4. Dacryocystectomy, dacryocystorhinostomy 5. Others	TEACHING METHODOLOGY Lecture/Discussions PRACTICAL SESSION
XIII) SURGICAL EQUIPMENT INSTRUCTIONAL OBJECTIVE To acquire knowledge of equipment required in ophthalmic surgeries		
Surgical Equipment	1. Operating light 2. Microscope 3. Cautery 4. Others	TEACHING METHODOLOGY Lecture/Discussions PRACTICAL SESSION
XIV) CONCEPTS OF SCRUBBING, GOWNING, AND GLOVING		

TOPIC	PERFORMANCE OBJECTIVE	PROCESS
INSTRUCTIONAL OBJECTIVE		
To acquire knowledge of the concepts of scrubbing, gowning, and gloving		
Concepts of Scrubbing, Gowning, and Gloving	Techniques of: 1. Surgical prepping and draping 2. Gowning and gloving	TEACHING METHODOLOGY Lecture/Discussions PRACTICAL SESSION 1. Scrubbing, gloving, prepping, and draping 2. Circulating in the operating room
XV) ADVANCED DIAGNOSTIC AND SUPPLEMENTARY TESTS		
INSTRUCTIONAL OBJECTIVE		
To acquire necessary knowledge in patient examination		
Patient Examination and supplementary tests	1. Assess and record anterior chamber (pen light) 2. Measure, compare and evaluate the pupillary function 3. Identify relative afferent pupillary defect using the swinging-light test	TEACHING METHODOLOGY Lecture/Discussions PRACTICAL SESSION
BASIC SKILLS		
KERATOMETRY	Perform automated and manual keratometry	
SLIT LAMP	Demonstrate slit lamp operation and estimate anterior chamber depth	
LENSOMETRY	1. Neutralize and record spectacle lenses using automated and manual lens meter Explain spectacle prescription components	
A SCAN	1. Measure and record axial length (A-Scan biometry and Optical Coherence Tomography) 2. Describe contact and immersion techniques Calculate and record intraocular lens (IOL) power	
Supplementary Tests	1. Perform and record color vision 2. Perform and record Schirmer tests 3. Perform and record Amsler Grid Perform and record confrontation field tests	
Visual fields	1. Perform and record automated perimetry Perform tangent and Goldmann perimetry	
ADVANCED SKILLS		
Ocular Motility	1. Perform and record versions and ductions 2. Distinguish between phoria and tropia 3. Define motility prefixes: eso and exo, hyper and hypo 4. Perform and record cover and uncover tests in correct sequence Perform and record the Krimsky and Hirschberg tests	

TOPIC	PERFORMANCE OBJECTIVE	PROCESS
<p>XVI) LENSES AND REFRACTIVE SURGERY</p>		
<p>INSTRUCTIONAL OBJECTIVE To acquire necessary knowledge of different types of lenses and refractive surgeries</p>		
Lenses and Refractive Surgery	<p>1. Different types of lenses a. Oblique cylinder b. Transposition c. Contact lenses 2. Refractive surgery</p>	<p>TEACHING METHODOLOGY Lecture/Discussions</p> <p>PRACTICAL SESSION</p>
<p>Advanced Skills</p> <p>Contact lenses Instruct patient on insertion and removal of lenses Explain contact lens types and wearing schedules Explain care systems Explain need for scheduled follow up visits Explain contradictions, symptoms and the exam</p>		
<p>XVII) SURGICAL ASSISTANCE</p>		
<p>INSTRUCTIONAL OBJECTIVES 1. To develop knowledge in assisting ocular surgeries</p>		
Surgical Assistance	<p>Assisting in ocular surgeries for a. Cataract management i. Different surgical types ii. Instruments and equipment required for various techniques b. Glaucoma management c. Other sub-specialty cases</p>	<p>TEACHING METHODOLOGY Lecture/Discussions</p> <p>PRACTICAL SESSION Assist in surgeries i. Cataract ii. Glaucoma iii Other sub-specialty cases</p>
Supplementary Tests	<p>Staining and scraping of corneal ulcers, Use of computers</p>	<p>TEACHING METHODOLOGY Lecture/Discussions</p> <p>PRACTICAL SESSION a. Color vision testing b. Visual field examination c. Ocular motility testing d. Use of computers</p>
<p>I. Seminars Perform all skills independently with periodic supervision</p> <p>II. Workshops</p>		<p>TEACHING AIDS 1. Model eye, specimens, posters 2. Printed materials, self-study materials</p>

TOPIC	PERFORMANCE OBJECTIVE	PROCESS
Perform all skills independently with periodic supervision		3. Slides 4. Videos/DVDs, CD-ROM, Internet
Introduction to Contact Lens Low Vision Basics of Optical Dispensing		

EXIT COMPETENCIES IN YEAR II

1. Assist in cataract surgery
2. Sterilize instruments, equipment, and operating room
3. Handle sterile instruments
4. Identify common diseases
5. Identify and act on emergencies
6. Assist in Organizing and perform in an eye camp set up
7. Will be able to refract and prescribe

TIME SCHEDULE

	II Year
Theory Sessions	200 hrs
Practical Sessions	750 hrs
Seminars	20 hrs
Group discussions	20 hrs
Assessment	20 hrs
Revision	40 hrs
Total	1050 hrs

Examination Pattern:

	Board Exam	Internal Assessment	Total
Paper I A. Nursing care of Ophthalmic patients B. Ophthalmic Instruments C. Ophthalmic Diagnostic Equipments D. Surgical procedure	20 20 20 20 10 90	10	100
Paper II A. Emergency Resuscitation B. Records and statistics C. Community Eye Health Update D. Basis of eye health education	20 10 40 20 90	10	100

PRACTICALS

	Board Exam	Int. Assessment	Viva voce	Total
Practical I	80	10	10	100
Practical II	80	10	10	100
Log book assessment	100	-	-	100

Examination Pattern

Question Paper of Maximum 90 Marks

Multiple Choice Questions Format