

**MAHARASHTRA UNIVERSITY OF  
HEALTH SCIENCES, NASHIK**



**DIPLOMA IN  
OPHTHALMIC SCIENCE  
SYLLABUS**



## DIPLOMA IN OPHTHALMIC SCIENCES

### 1<sup>st</sup> Year: Assessment System & Syllabus

Sr. No	Paper	Subject	Theory	Practical	Total Marks
1	Paper – I	Anatomy, Physiology, Biochemistry, Pharmacology, Pathology & Microbiology	50	50	100
2	Paper – II	Ophthalmic Geometrical & Physiological Optics, Optics & Refraction	50	50	100
3	Paper – III	Ophthalmic Diagnostic Procedure, Minor Surgical Procedure & Theater (O.T.) Management	50	50	100
4	Paper – IV	Ocular Eye Diseases, Primary Eye Care Hospital Procedure & Patient Care Medical & Records.	50	50	100

### Theory

#### Paper – I

**Subject :- Anatomy, Physiology, Biochemistry, Microbiology, Pathology & Pharmacology**

Sr. No.	Topics
<b>1<sup>st</sup> Semester</b>	
<b><u>Anatomy, Physiology &amp; Biochemistry</u></b>	
1	Human Anatomy with special senses. Parts of body organs of special centres.
2	Bony orbit and ocular adnexa, ocular muscle and cranial nerve.
3	Gross, anatomy of coats of eye ball cornea, sclera, Urea, Retina, Lens and vitreous.
4	Physiology of eye ball, physiology of vision, color vision, ocular movements and Binocular vision.
5	Accommodation & Convergence, formation & circulation of acqu & lacrimal fluids.
6	Basic Biochemistry, function of cells and tissue, introduction to carbotiadryates proteins and lipids, enzymes, vitamins & minarels.
7	Hormones & metabolic regulation, clinical Biochemistry, ocular biochemical aspects. vitreous, Cornea, Lens Aqueous, Retina.
<b>2<sup>nd</sup> Semester</b>	
<b><u>Microbiology, Pathology &amp; Pharmacology.</u></b>	
1	Introyduction to the various organism responsible for diseases & Bacteria, virus and fungi.
2	Techniques of conjunctival smears, culture, scraping and asepsis.
3	Infection & their prevention routes, cross infection, antiseptic and asepsis.
4	Examination of urine Gross- Albumin Sugar.
5	Clinical Pathology, staning laboratory tests.
6	Various method of drugs in Ophthalmic diseases.
7	Various side reactions of common Ophthalmic drug anesthesia, mitosis, midrasis.
8	Primary Prevention.

## Paper – II

### Subject :- Ophthalmic Geometrical & Physiological Optics, Optics & Refraction

Sr. No.	Topics
<b>1<sup>st</sup> Semester</b>	
<b>Ophthalmic Geometrical &amp; Physiological Optics</b>	
1	Nature of light, Laws of Refraction, Optical aberrations of ophthalmic glasses.
2	Optics of the human Eye & refractive.
3	Myopia, hypermetropia, aphakia & its correction.
4	Astigmatism, Presbiopia, aphakia & its correction.
5	Ophthalmic lenses and new Trends.
6	Photometry, fiber optics, colour theory.
7	Refractive anomalies & their cause.
<b>1<sup>st</sup> Semester</b>	
<b>Optics &amp; Refraction</b>	
1	Various Components of vision, principle ok testing for visual acuity.
2	Distant, Near, Colour vision.
3	Retinoscopy & Subjective correction.
4	Measurement of IPD, Fitting & Adjustment of spectacle.
5	Decentring , Biofocals, Segment heights and transposition of lenses.
6	Checking of spectates.
7	Types of glass, key and new trands glass.
8	Visual field.
9	Demonstration & Practical problems in refraction.

## Paper – III

### Subject :- Ophthalmic Diagnostic Procedure, Minor Surgical Procedure & Theater (O.T.) Management

Sr. No.	Topics
<b>1<sup>st</sup> Semester</b>	
<b>Ophthalmic Diagnostic Procedure</b>	
1	History, Visual acuity testing ocular motility examination, eye examination, slit lamp, LOP, Gonioscopy, Ophthalmoscopy, Examination of lacrimal system, orbit, macular function testes, visual field charting.
2	Refractive Instruments, Retinoscope, Optometers, Lensometer, slit lamp, tonometer, fundus camera, keritometer, orthoptics instruments, colour vision.
3	Direct & Indirect Ophthalmoscopy.
<b>2<sup>nd</sup> Semester</b>	
<b>Minor Surgical Procedure &amp; Theater (O.T.) Management</b>	
1	Installation of eye drops and subconjunctival injection, fomentation, irrigation, epilation, syringing.
2	Minor Surgical procedures, nursing care, laying of trolley for surgery. O.T. Techniques.
3	Asepsis, Fumigation, sterilization of instruments.
4	Making, Swab, Stricks, pads and preparation of drums and autoclaving.
5	Laying of trolley for surgery, cataract, glaucoma, sac, pterygium, chalazion, entropion and squint.
6	Preoperative and post operative care.
7	Innovation in Ophthalmic surgery.

## Paper – IV

### Subject :- Ocular Eye Diseases, Primary Eye Care, Hospital Procedure & Patient Care Medical & Records.

Sr. No.	Topics
<b>2<sup>nd</sup> Semester</b>	
<b>Ocular Eye Diseases, Primary Eye Care</b>	
1	Common Eye Diseases, types of conjunctivitis including trachoma, corneal ulcer & opacities, Iritis, cataract, lids and lacrimal sac eye emergencies, Eye injuries, first aid and treatment, Glaucoma, Squint, Systemic disorders, screening and prevention of blindness & visual impairment.
2	Role of Ophthalmic Sciences, Ophthalmic in primary eye care.
3	Blindness in adult, children and primary care.
<b>2<sup>nd</sup> Semester</b>	
<b>Hospital Procedure &amp; Patient Care Medical &amp; Records.</b>	
2	Diseases Index, alphabetic index, numerical index, Major & Minor surgical records.
3	Funds, Administration, correspondence, Accounts, use of Computers, management of community eye services.
4	Basic Accountancy, cash book, sales, purchase register, ledger, Bank reconciliation.

## 2<sup>nd</sup> Year: Assessment System & Syllabus

Sr. No	Paper	Subject	Theory	Practical	Total Marks
1	Paper – I	Community Ophthalmology, Public Health & Community & Pediatric Optometry	50	50	100
2	Paper – II	Ophthalmic Diagnostic Equipments, Low Vision Aids & Rehabilitation, Contact Lenses and Dispensing Optics	50	50	100
3	Paper – III	Optometry Profession & Health Education, Public Relation	50	50	100
4	Paper – IV	Project	50	50	100

### Paper – I

#### Subject :- Community Ophthalmology, Public Health & Community & Pediatric Optometry

Sr. No.	Topics
<b>3<sup>rd</sup> Semester</b>	
<b><u>Community Ophthalmology.</u></b>	
1	Principal & philosophy of public health and community ophthalmology.
2	Epidemiology, Health Care, System, National Programme for control of Blindness, vision 2020 right to sight.
3	Population based surveys, screening procedures.
4	Role of primary eye care professionals in vision 2020.
5	Impact of eye diseases on community.
6	Organization, arrangements & management of community eye care services.
<b>4<sup>th</sup> Semester</b>	
<b><u>Public Health &amp; Community Optometry.</u></b>	
1	Philosophy of Public health, impact of Blindness on Society, organization of eye camps.
2	Arrangements of refractive camps, Interaction with voluntary organization.
3	Screening programme & referral.
4	Community based Rehabilitation.
5	Occupational & law & Optometry, optometry profession in India & abroad.
6	Data Collection & school surveys working with community.
<b>4<sup>th</sup> Semester</b>	
<b><u>Pediatric Optometry</u></b>	
1	Examination & Diagnosis visual defects in children.
2	Refractive status, ocular motility Examination.
3	Normal appearance, pathology and structural anomalies of orbit, eye lids, Lacrimal systems conjunctive, rehabilitation.
4	Childhood Blindness & role of vision care professional.

## Paper – II

### Subject :- Ophthalmic Diagnostic Equipments, Low Vision Aids & Rehabilitation, Contact Lenses and Dispensing Optics

Sr. No.	Topics
<b>3<sup>rd</sup> Semester</b>	
<b><u>Ophthalmic Instruments</u></b>	
1	Trial set, slit lamp, Focimeter, Lensometer, Retinoscopy, Optometers, Ophthalmoscope.
2	Tonometer, Keritometer, Refractometer.
3	Innovation in Ophthalmic equipment.
<b>3<sup>rd</sup> Semester</b>	
<b><u>Low Vision Aids &amp; rehabilitation</u></b>	
1	Identifying & Evaluation of low vision patient. Refraction and optical, low vision Aids.
2	Low vision care & rehabilitation.
3	Case Management & Diagnostic procedures in low vision.
4	Low vision Aids & orthoptic exercise.
5	Rehabilitation and Counselling.
<b>4<sup>th</sup> Semester</b>	
<b><u>Contact lenses and Dispensing Optics</u></b>	
1	History and Development, types of cataract lenses, fitting of contact lenses.
2	Toric Contact lenses, bifocal lenses, disposable contact lenses.
3	Specially of contact lenses, complications of contact lenses, contraindication.
4	Dispensing optics, surfacing & polishing, lens, faults, inspection, marking & edging of bifocal lenses, multifocal lenses, progressive lenses.
5	Selection of frames, IPD measurement.

## Paper – III

### Subject :- Optometry Profession & Health Education, Public Relation

Sr. No.	Topics
<b>3<sup>rd</sup> Semester</b>	
<b><u>Optometry profession &amp; Health Education &amp; Public Relation</u></b>	
1	Primary eye Care Profession in India, Licensure, Ethics, laws, New Involvement on optometry profession.
2	Eye health education, screening programme in school children, eye health education in industrial workers.
3	Working with individual & Community.
4	Public relation, Definition, tools, definition & process of communication.
5	Working for News Papers, Radio, TV, Public relation with organizations, employee, customer, Community, Welfare agencies, Health agencies, Hospital, Publicity tools & Techniques.

## Practical

### PRACTICALS TRAINING AT AFFILIATED MEDICAL COLLEGE & HOSPITAL

Sr. No.	Topic
1	Visual acuity, near vision, colour vision, visual field, central peripheral.
2	Identification of lenses, spherical, cylindrical, prism, neutralization, Lensometry, Retinoscopy.
3	Subjective verification Aphakia, Myopia, hypermetopia, astigmatism, children, pretiopia.
4	Measurement of IPD centering and decentering.
5	Common eye diseases prevention and recognition conjunctives, Corneal ulcer, red eye, eye sigs in malnutrition, VAD, Glaucoma, cataract, squint.
6	Lensometry, keritometry, Autorefractometer.
7	Nursing care and laying of trolleys, Dressing.
8	Cleaning & Sterilization of instruments, fumigation, Swab, pads, drums, autoclaving.
9	Screening schools and in community.
10	Cases screened, Referral etc.
11	O.T. wards, OPD arrangements.
12	Community eye care programs.

### Teaching programme & Estimated Hours of Teaching:

Sr. No.	Name of Topic	Estimated Hrs. of teaching as per Curriculum
<b>First year - First semester</b>		
I	Anatomy & Physiology & Biochemistry	60
II	Ophthalmic, Geometrical & Physiological Optics	60
III	Optics & Refraction	50
IV	Ophthalmic Diagnostic Procedures	60
	<b>Total</b>	<b>230</b>
<b>First year - Second semester</b>		
I	Ocular Eye diseases & Primary Eye Care	75
II	Micro Biology pathology & Pharmacology	50
III	Minor surgical Procedures & Theatre management	50
IV	Hospital Procedures & patient care & Medical Records	50
	<b>Total</b>	<b>225</b>
<b>Second year - Third semester</b>		
I	Community Ophthalmology	60
II	Low Vision Aids & Rehabilitation	65
III	Contact Lenses & Dispensing Optic	50
IV	Ophthalmic Diagnostic equipments	65
	<b>Total</b>	<b>240</b>
<b>Second year - Fourth semester</b>		
I	Public Health & Community Optometry	70
II	Paediatric Optometry	50
III	Optometry profession Health Education, Public Relation	60
IV	Project work	60
	<b>Total</b>	<b>240</b>

A.T.K.T. Pattern should be followed as it is. After Completion of 1<sup>st</sup> Year Student should pass in two subjects with requirement of minimum 40%.

There should be one External and one Internal Examiner who is from Ophthalmic Faculty. And exam will be taken as per previous norms.

This is the Programme for conduction of Annual Examination for the course of Diploma in Ophthalmic Science and Optometry First and Second year.