

# **MAHARASHTRA UNIVERSITY OF HEALTH SCIENCES, NASHIK**



## **DIPLOMA IN OPTOMETRY SYLLABUS**



## DIPLOMA IN OPTOMETRY

### 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	Optics (I & II)	50	50	100
3	Paper – III	Diagnostic Procedure & Clinical Optometry	50	50	100
4	Paper – IV	Common Eye Diseases (1 <sup>st</sup> & II <sup>nd</sup> )	50	50	100

### Theory

#### Paper – I

#### Subject :- Basic Sciences

(Anatomy, Physiology, Biochemistry, Pharmacology, Pathology & Microbiology)

Sr. No.	Topics
<b>1<sup>st</sup> Semester</b>	
<b>General Anatomy</b>	
1	Parts of Body, its functions,
2	Tissue of body,
3	General Plan of organ system,
4	Cell structure and other anatomical aspects of vital organs of body.
<b>General Physiology</b>	
1	Cell, Physiology
2	Blood,
3	Digestion,
4	Excretion,
5	Endocrines,
6	Reproduction,
7	Circulation,
8	Nervous System and Special Senses.
<b>Anatomy &amp; Physiology of Eye</b>	
1	Ocular Anatomy,
2	Embryology of Sclera,
3	Cornea,
4	Uvea,
5	Retina,
6	Visual Pathway,
7	Layers of Eye Ball,
8	Protective Mechanism in the Eye,
9	Extraocular Muscle
10	Physiology,
11	Lens Metabolism,
12	Visual Acuity,
13	Visual Pathway.
<b>Basic Biochemistry, Pharmacology</b>	
1	Hormones & Metabolic Regulation,
2	Whole body Metabolism,
3	Ocular Biochemical aspects of the Eye,

4	Biochemistry Techniques,
5	Introduction of Carbohydrates,
6	Proteins,
7	Lipids,
8	Enzymes,
9	Minerals
<b>2<sup>nd</sup> Semester</b>	
<b>Pharmacology &amp; Microbiology</b>	
1	Minerals
2	Mechanisms of drugs
3	Principals of Pharmacology
4	Optometric diagnostic drugs
<b>Pathology &amp; Microbiology</b>	
1	Pathological tests,
2	Clinical Pathology
3	Staining
4	Laboratory tests
5	Principles of Cultivation of Bacteria
6	Sterilization and Disinfection.

**Paper – II**  
**Subject :- Optics (I<sup>st</sup> & II<sup>nd</sup>)**

Sr. No.	Topics	
<b>1<sup>st</sup> Semester</b>		
<b>Optics Part – I<sup>st</sup></b>		
<b>A</b>	<b>Geometric Optics</b>	
	1	Fibre Optics,
	2	Colour theory,
	3	Lens power,
	4	Visual Acuity,
	5	Magnification,
	6	Refractive index of lenses,
7	Prismatic power,	
<b>B</b>	<b>Optometric Optics</b>	
	1	Form of lenses,
	2	Base Curves,
	3	Lens Tools and Blanks,
	4	Cylindrical lenses,
	5	Determining lens power,
	6	Absorptive lenses,
	7	Types of spectacle frames and lenses,
	8	Toric glasses,
	9	Bifocal and Multifocal lenses
	10	Tinted Lenses,
	11	Safety and industrial eye protective lenses,
12	Spectacle magnifiers,	
<b>C</b>	<b>Computer Programming</b>	
	1	Introduction and use of computer use of computer in ophthalmic and Optometry Sciences.
	2	Management and handling and problem solving.
<b>D</b>	<b>Basic Mathematic</b>	
	1	Basic formulas and calculations.
	2	For optometric Purpose.

<b>2<sup>nd</sup> Semester</b>	
<b>Optics Part – II<sup>nd</sup></b>	
<b>A</b>	<b>Low Vision Aids</b>
	1 Identifying and evaluation of low vision patients
	2 Refraction and optical and low Vision Aids,
	3 Low Vision care and rehabilitation case management and diagnostic Procedures in low vision,
4 Low vision aids and their use Orthoptic Exercise.	
<b>B</b>	<b>Contact Lenses</b>
	1 History and Development,
	2 Types of Contact lenses,
	3 Fitting of Contact lenses,
	4 Disposable Contact lenses,
	5 Specialty of Contact lens,
6 Complication of Contact lenses	

**Paper – III**  
**Subject :- Diagnostic Procedure & Clinical Optometry**

Sr. No.	Topics
<b>1<sup>st</sup> Semester</b>	
<b>Diagnostic Procedure</b>	
<b>A</b>	<b>Vision Testing Procedures</b>
	1 Testing of distant Vision
	2 Near Vision
	3 Color Vision
	4 Field Vision
5 Diagnostic procedures and use of Instrument in Refractive Error,	
<b>B</b>	<b>Visual Optics</b>
	1 Refractive Conditions,
	2 Far and near points of accommodation,
	3 Refractive anomalies and their cause,
	4 Ratinoscopy,
	5 Principles and methods,
	6 Objective and subjective methods,
7 Effective Power of Spectacle.	
<b>1<sup>st</sup> Semester</b>	
<b>Clinical Optometry</b>	
<b>A</b>	<b>Refractive Errors and Its Correction</b>
	1 Diagnosis of Myopia,
	2 Hyermetropia,
	3 Aphakia,
4 Astigmatism and its Correction,	
<b>B</b>	<b>Optometric Instrumentation</b>
	1 Refractive Instrument,
	2 Lensometer,
	3 Retinoscope,
	4 Optometers Ophthalmoscope,
	5 Slit lamp,
	6 Tonometer,
	7 Keratometer
	8 Colour Vision
	9 Vision Testing Instruments,
10 Refractometer.	
<b>C</b>	<b>Clinical Examination of Visual System</b>
	1 Visual acuity testing,
	2 Iop,
3 Ophthalmoscope,	

	4	Examination of Lacrimal system,
	5	Orbit,
	6	Macular function test,
	7	Visual field testing,

**Paper – IV**

**Subject :- Common Eye Diseases (I<sup>st</sup> & II<sup>nd</sup>)**

<b>Sr. No.</b>	<b>Topics</b>	
<b>2<sup>nd</sup> Semester</b>		
<b>Common Eye Diseases- I<sup>st</sup></b>		
<b>A</b>	<b>Ocular Eye Diseases's</b>	
	1	All Ocular eye diseases of Eye including Lids,
	2	Lacrimal system,
	3	Orbit,
	4	Sclera,
	5	Conjunctiva and Cornea,
<b>B</b>	<b>Systemic Diseases</b>	
	1	Diabetes,
	2	Hypertension,
	3	Acquired heart disease,
	4	Thyroid disorders,
	5	General Medical Emergencies,
	6	Infective and Non- Infective disease.
<b>2<sup>nd</sup> Semester</b>		
<b>Common Eye Diseases- II<sup>nd</sup></b>		
<b>A</b>	<b>Ocular Eye Diseases's</b>	
	1	Ubea,
	2	Vitroretinal disorders,
	3	Cataract,
	4	Glaucoma,
	5	Trauma,
	6	Neuro Ophthalmic Disorders,
	7	Squint
<b>B</b>	<b>Common Eye Infection and their Prevention and Control</b>	
	1	Common Eye Diseases and their management
	2	Common Eye Infection that lead to Visual impairment,
	3	Screening and Prevention of blindness and Visual impairment,
	4	Role of optometrist for Prevention of avoidable blindness

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

Sr. No	Paper	Subject	Theory	Practical	Total Marks
1	Paper – I	Community Eye Health (I <sup>st</sup> & II <sup>nd</sup> )	50	50	100
2	Paper – II	Optometry Planning & Management	50	50	100
3	Paper – III	Hospital Procedure, Clinical Ophthalmic Techniques & Dispensing Optics	50	50	100
4	Paper – IV	Health Promotional & Education, Optometry Profession and Public Relation	50	50	100

### Paper – I

#### Subject :- Community Eye Health (I<sup>st</sup> & II<sup>nd</sup>)

Sr. No.	Topics	
<b>3<sup>rd</sup> Semester</b>		
<b>Community Eye Health – I<sup>st</sup></b>		
<b>A</b>	<b>Prevention &amp; Control of Visual Impairment</b>	
	1	Prevention and control of visual impairment in children and adults,
	2	Common eye infection factors responsible for blindness,
	3	Causes and control of common eye infection that lead to visual impairment and blindness.
<b>B</b>	<b>Public Health &amp; community Optometry</b>	
	1	Philosophy of public Health,
	2	Epidemiology
	3	Health Care System,
	4	Health & Vision Care,
	5	Vision 2020,
	6	Blindness Control Programme,
	7	Population
	8	Based Surveys,
	9	Importance of visual Impairment due to refractive Error
	10	Screening for refractive Errors in Communities.
	11	Low vision and blind persons and its rehabilitation.
12	Role of primary Eye care professionals in "Vision-2020".	
<b>4<sup>th</sup> Semester</b>		
<b>Community Eye Health – II<sup>nd</sup></b>		
<b>A</b>	<b>Community Needs Assessment for Planning Eye Care Delivery</b>	
	1	Project Planning,
	2	Surveys,
	3	Data Collection,
	4	Estimate the Community need for eye care services for planning eye care service delivery,
5	National Programme for control of blindness and its pattern of working.	
<b>B</b>	<b>Medical Psychology</b>	
	1	Definition,
	2	Motivation,
	3	Normality & Abnormality,
	4	Impact of Eye Disease on the Community,
5	Rehabilitation of the Blind.	

**Paper – II**  
**Subject :- Optometry Planning & Management**

Sr. No.	Topics
<b>4<sup>th</sup> Semester</b>	
<b>Hospital Procedure</b>	
<b>A</b>	<b>Planning &amp; Management of Eye Care Delivery</b>
1	Programme planning for vision screening camps,
2	School Eye screening camps,
3	Community Eye Health Education Programmes,
4	NPCB programme and its working,
5	Vision 2020 programme,
6	National & International agencies working for Blindness Control Project,
7	Role of vision care Specialists in vision 2020 for Refractive Error & Management of Eye Camps,
<b>B</b>	<b>Basic Accountancy</b>
1	Basic Accountancy Registers,
2	Principles,
3	Ledger,
4	Trial Balance,
5	Cash Book,
6	Sales & Purchase Registers,
7	Bank Reconciliation,
8	Balance Sheet,
9	Income Tax,
10	Sales Tax

**Paper – III**  
**Subject :- Hospital Procedure, Clinical Ophthalmic Techniques & Dispensing Optics**

Sr. No.	Topics
<b>4<sup>th</sup> Semester</b>	
<b>Hospital Procedure</b>	
<b>A</b>	<b>Optometry Clinics</b>
1	Optometry Clinics,
2	Instruments for Optometry Clinics,
3	Setup and Management of Clinic,
4	Avoidable and Non-avoidable blindness
<b>B</b>	<b>Hospital Procedure &amp; Management of Community Eye Care Camps</b>
1	Hospital Procedure & Management of Community Eye Care Camps
2	Funds,
3	Administration,
4	Correspondence,
5	Accounts,
6	Reception,
7	Use,
8	Computers,
9	Management of Eye Camps,
10	Management of Community Eye care Camps,
11	Dark Rooms,
12	Refraction set up, etc.
13	Publicity of Eye Care Camps,
14	Involvement of Community for eye care camps.

<b>3<sup>rd</sup> Semester</b>	
<b>Clinical Ophthalmic Techniques</b>	
<b>A</b>	<b>Minor Surgical Procedures</b>
	1   Installation of eye drops and Subconjunctival Injection,
	2   Fumieation,
	3   Errigation,
	4   Epliation,
	5   Syringing,
<b>Dispensing Optics</b>	
<b>A</b>	<b>Dispensing Optics</b>
	1   Surfacing & Polishing,
	2   Dispensing lens,
	3   Faults Inspection,
	4   Marking and edging of Bifocal lenses,
	5   Selection of frames.
	6   IPD measurement.
<b>B</b>	<b>Dispensing Procedures</b>

### Paper – IV

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

Sr. No.	Topics
<b>4<sup>th</sup> Semester</b>	
<b>Health Promotion and Education – IV</b>	
<b>A</b>	<b>Health Promotion &amp; Education in Community Eye Health</b>
	1   Principles of planning and Managing Eye Care Programme for control of blindness.
	2   Community needs and assessment,
	3   Eye care education,
	4   Health education methods and tools,
	5   Role of optometrists for eye care education.
<b>3<sup>rd</sup> Semester</b>	
<b>Optometry Profession</b>	
<b>A</b>	<b>Occupational Optometry</b>
	1   Occupational Diseases,
	2   Safety,
	3   Prevention,
	4   Hygiene,
	5   Occupational Health,
6   Factories Act.	
<b>B</b>	<b>Law &amp; Optometry</b>
	1   Primary Eye care profession in India,
	2   Legal Techniques,
	3   Licensure,
	4   Ethics,
	5   Medical Practice Laws,
	6   Optometry profession in India and Abroad.
	7   Organization and Bodies in the field of Optometry.
8   Laws, for Medical & Para-Medical practices in India.	
<b>Public Relation</b>	
	1   Definition,
	2   Public tools,
	3   Public relation with press,
	4   Audio-visual communication,
	5   Definition and process of communication,
	6   Types of communication,

7	Writing for news papers,
8	Radio,TV,
9	Public Relation with Employee,
10	Customer,
11	Community,
12	Welfare Agencies,
13	Health Agencies,
14	Hospitals,
15	Institutes,
16	Public Relation and publicity tools,
17	For Community Eye Camps publicity Techniques.

## Practical

### PRACTICALS TRAINING AT AFFILIATED MEDICAL COLLEGE & HOSPITAL

Sr. No.	Topic
1	Visual Acuity.
2	Near Vision.
3	Colour Vision.
4	Central, peripheral,
5	Identification of Lenses, Spherical, Cylindrical, Prism, Neutralization.
6	Lensometry,
7	Radioscopy,
8	Subjective Verification, Aphakia, Children, Presbiopia,
9	Measurement of Verification, of IPD
10	Transportation of lens,
11	Common Eye Disease prevention and recognition,
12	Trachoma, Corneal Ulcer, Conjunctivitis, Red Eyes, Eye signs in malnutrition, Glaucoma, cataract, Squints.
13	Tonometry,
14	Contact lenses prescription and fitting, complications and management.
15	Nursing Care, Minor surgical procedures, Care of Ophthalmic Equipments.
16	Every Students will train with demonstration and maintain a Practical note book.

## 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	Optics part - Ist	65
III	Diagnostic Procedure	65
IV	Clinical Optometry	55
<b>Total</b>		<b>245</b>
<b>First year - Second semester</b>		
I	Common Eye Diseases – Ist	75
II	Common Eye Diseases – IIInd	60
III	Optics part – IIInd	55
IV	Pharmacology & Microbiology	50
<b>Total</b>		<b>240</b>
<b>Second year - Third semester</b>		
I	Community Eye health – Ist	60
II	Optometry profession and public relation	55
III	Clinical Ophthalmic Techniques	50
IV	Dispensing optics	60
<b>Total</b>		<b>225</b>
<b>Second year - Fourth semester</b>		
I	Community Eye health – IIInd	65
II	Optometry planning and management – II	60
III	Hospital Procedure	60
IV	Health promotion and education	50
<b>Total</b>		<b>235</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.