

**Faculty of Allied Health Sciences**

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**SGT UNIVERSITY**

**SHREE GURU GOBIND SINGH TRICENTENARY UNIVERSITY**

**GURGAON, DELHI-NCR**

*(Established by the Haryana Act No.8 of 2013)*

# **Master of optometry**

# **Syllabus**

# Master of Optometry

## SCHEME OF EXAMINATION

### FIRST SEMESTER

S.No	Subject	Paper code	Theory Examination		Practical Examination		Total marks	Total credits
			University Exam	Internal Assess.	University Exam	Internal Assess.		
1	Epidemiology, public health & Community Optometry		60	40	-----	-----	100	3
2	Binocular vision-I& Pediatric Optometry		60	40	60	40	200	3+1
3	Ocular Diseases & Diagnostic procedure-I		60	40	60	40	200	4+1
4	Low Vision Care-I		60	40	60	40	200	3+1
5	Sport Vision		60	40	-----	-----	100	3
6	Clinic-I		-----	-----	60	40	100	4
	Total		300	200	240	160	900	23

### SECOND SEMESTER

S.No	Subject	Paper code	Theory Examination		Practical Examination		Total Mark	Total credits
			University Exam	Internal Assess.	University Exam	Internal Assess.		
1	Research Methodology, Biostatistics and Hospital Management		60	40	-----	-----	100	3
2	Binocular vision-II & Vision Therapy		60	40	60	40	200	3+1
3	Low Vision Care-II		60	40	60	40	200	3+1
4	Contact lens-I		60	40	60	40	200	3+1
5	Ocular Diseases & Diagnostic procedure-II		60	40	60	40	200	3+1
6	Clinic-II		----	-----	60	40	100	4
	Total		300	200	300	200	1000	23

### **THIRD SEMESTER**

S.No	Subject	Paper code	Theory Examination		Practical Examination		Total mark	Total Credits
			University Exam	Internal Assess.	University Exam	Internal Assess.		
1	Contact lens-II		60	40	60	40	200	3+1
2	Dispensing Optics		60	40	60	40	200	3+1
3	Refractive Surgery		60	40	60	40	200	3+1
4	Environmental Optometry		60	40			100	3
5	Clinic-III		-----	-----	60	40	100	4
6	Clinical Dissertation		-----	-----	-----	-----	-----	2
	Total		240	160	240	160	800	21

### **FOURTH SEMESTER**

S.No	Subject	Paper code	Theory Examination		Practical Examination		Total Mark	Total credits
			University Exam	Internal Assess.	University Exam	Internal Assess.		
1	Specialty Clinic Posting		-----	-----	60	40	100	4
2	Clinical Dissertation		-----	-----	120	80	200	12
	Total				180	120	300	16

# Master of Optometry

## Semester-I

### Paper-I

#### EPIDEMIOLOGY, PUBLIC HEALTH AND COMMUNITY OPTOMETRY

Total hours: 40

S.No	Topic to be covered	Domain	Teaching Hours
1	Public health concepts	<b>Must Know</b> <ul style="list-style-type: none"><li>• History of public health</li><li>• History of public health Optometry</li><li>• Organization of health services</li><li>• Health care delivery systems in India and determinants of health and care delivery system as well as planning of health services.</li><li>• Global medicine and evolution of public health in India</li><li>• Public health optometry: concepts and implementation.</li></ul> <b>Desirable to Know</b> <ul style="list-style-type: none"><li>• Health man power protection in practice of Optometry</li></ul> <b>Nice to Know</b> <ul style="list-style-type: none"><li>• Multidisciplinary and institutional practices modes</li></ul>	10
2	Levels of prevention	<b>Must Know</b> <ul style="list-style-type: none"><li>• Optometrists role in community</li><li>• Optometry role as a primary eye care professional</li></ul>	5
3	Health system	<b>Must Know</b> <ul style="list-style-type: none"><li>• Concepts of health systems</li><li>• National health programs and effective delivery of eye care services.</li></ul>	2
4	Vision2020: The Right to sight	<b>Must Know</b> <ul style="list-style-type: none"><li>• Public health and epidemiology</li><li>• National and International agencies in eye care, NPCB, DBCS</li></ul>	3
5	Global blindness and visual impairment	<b>Must Know</b> <ul style="list-style-type: none"><li>• vision screening</li><li>• organizing eye camps</li><li>• Eye donation and eye banking</li><li>• Refractive errors and low vision as public health issues socioeconomic implications of blindness and visual impairment</li></ul> <b>Desirable To know</b> <ul style="list-style-type: none"><li>• Role of civil societies in blindness prevention</li></ul>	10
6	Epidemiology	<b>Must Know</b>	10

		<ul style="list-style-type: none"><li>• Refractive errors and presbyopia</li><li>• Age related cataract, Low vision, Diabetic retinopathy, glaucoma, Age related macular degeneration, Trachoma, corneal blindness</li></ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"><li>• Prevalence incidence and distribution of visual impairment</li><li>• Basic of epidemiology study methods</li><li>• Incidence, prevalence risk factors and odd ratio</li><li>• Childhood blindness</li></ul>	
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**Master of Optometry**  
**Semester-I**  
**Paper-2**  
**BINOCULAR VISION-I & PEDIATRIC OPTOMETRY**

**Total hours: 40**

S.No	Topic to be covered	Domain	Teaching Hours
1	Refractive development and oculomotor function	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Revision of anatomy and physiology of EOM and binocular vision</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Refractive development, visually guided control of refractive state: Animal studies, infant accommodation and convergence, conjugate eye movement of infants,</li> </ul>	5
2	Spatial, Chromatic and binocular vision	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Sensorimotor adaptation and development of the Horopter, two stages in the development of binocular vision and eye alignment, retinal and cortical and abnormal visual development</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Front –end limitations to infant spatial vision: Examination of two analyses, development of the human visual field</li> <li>• Development of Scotopic retinal sensitivity, infant color vision</li> </ul> <p><b>Nice to know</b></p> <ul style="list-style-type: none"> <li>• Orientation and motion selective mechanisms in infants</li> <li>• Intrinsic noise and infant performance</li> <li>• Development of interocular vision in infants</li> <li>• Stereopsis in infant and its development relation to visual acuity</li> </ul>	15
3	Clinical application of Binocular Anomalies	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Assessment of child vision and refractive error, cycloplegic refraction, color vision assessment in children</li> <li>• Dispensing for the child patients, common genetic problems in pediatric Optometry</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Pediatric ocular diseases, Ocular trauma in children, myopia control, Pediatric contact lens practice, Clinical uses of prism</li> </ul>	10

4	Clinical management of Binocular Anomalies	<b>Must know</b> <ul style="list-style-type: none"><li>• Dyslexia and optometry management</li><li>• Electro-diagnostic needs of multiple handicapped children, management guideline – Ametropia, constant strabismus, Amblyopia</li><li>• Nystagmus.</li><li>• Accommodation and vergence anomalies, ocular motility procedure</li></ul>	10
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**Master of Optometry  
Semester-I  
Paper -3**

**OCULAR DISEASES AND DIAGNOSTIC PROCEDURE-I**

**Total Hours: 40**

S.No	Topic to be covered	Domain	Teaching Hours
1	Basic review of clinical examination of visual system	<p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Review of basic science</li> <li>• Optometric preliminary examination</li> <li>• Ocular health examination</li> <li>• Objective and subjective refraction</li> <li>• Binocular vision examination</li> </ul>	10
2	Anterior segment	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Lens and its abnormalities</li> <li>• Disease of conjunctiva and sclera</li> <li>• Diseases of cornea</li> <li>• Interpretation and management of dry eye</li> </ul> <p><b>Desirable to Know</b></p> <ul style="list-style-type: none"> <li>• Diseases of Uvea</li> <li>• Diseases of eye lid and adnexa</li> </ul>	15
3	Ophthalmic instrument	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Slit-Lamp, Specular microscopy, Corneal Topography, Cataract evaluation, Pentacam, Pachymetry, Abberometry, OCT, ONH evaluation,</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Gonioscopy, Fluorescein angiography, Refractive surgery, Orbscan, HRT, GDx, corneal hysteresis,</li> </ul>	15



**Master of Optometry  
Semester-I  
Paper-4  
LOW VISION CARE-I**

**Total hours: 40**

S.No	Topic to be covered	Domain	Teaching Hours
1	Introduction to low vision	<p><b>Must know</b></p> <ul style="list-style-type: none"> <li>• Definition of low vision</li> <li>• Impact of low vision</li> <li>• Prevalence of low vision</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Different levels of low vision services, psychosocial implication of low vision services</li> </ul>	10
2	Causes and symptoms of low vision	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Common causes of low vision</li> <li>• Low vision symptoms and condition</li> <li>• Functional implication of diseases causing visual impairment.</li> </ul>	10
3	Clinical assessment of low vision patient	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Purpose of low vision assessment</li> <li>• Steps of low vision assessment</li> </ul>	5
4	Magnification	<p><b>Must know</b></p> <ul style="list-style-type: none"> <li>• Different types of magnification</li> <li>• Different methods and formulae for calculating magnification</li> <li>• How to determine resolution ability of magnifying devices</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Predict distance required to meet resolution goal, measure lens power, measure equivalent viewing distance</li> <li>• Calculate equivalent viewing distance for different devices.</li> </ul>	10
5	Optical low vision devices	<p><b>Must know</b></p> <ul style="list-style-type: none"> <li>• What are optical devices?</li> <li>• Definition of various low vision devices, different type of optical low vision devices and their uses</li> </ul>	5

**Master of Optometry**  
**Semester-I**  
**Paper- 5**  
**SPORTS VISION**

**Total Hours:40**

S.No	Topic To be covered	Domain	Teaching Hours
1	Introduction to sports and visual needs	<b>Must Know</b> <ul style="list-style-type: none"> <li>• Definition</li> <li>• Classification in to Dynamic and static sports</li> <li>• Visual assessment</li> <li>• Identifying the visual skills required</li> <li>• Estimating the impact of vision training on sport condition</li> </ul>	10
2	Identifying cases where special intervention is required	<b>Must Know</b> <ul style="list-style-type: none"> <li>• Designing treatment plan: Therapy Goals, Skill Improving Techniques</li> </ul> <b>Desirable to know</b> <ul style="list-style-type: none"> <li>• Psychology of completion, considerable factors</li> <li>• Dominant eye identification, choosing the skill with the sports they play, common visual needs required, deficits in the person to be addressed , player’s expectations and preferences</li> </ul>	10
3	Skills to be improved	<b>Must Know</b> <ul style="list-style-type: none"> <li>• Dynamic visual acuity</li> <li>• Visual concentration</li> <li>• Eye tracking: Fixation , saccades, Pursuits, Vestibular and Optokinetic movement</li> <li>• Eye- hand – Body Coordination, Visual memory, Visualization, Peripheral vision awareness, Accommodation , Vergence facility, Visual reaction time</li> </ul> <b>Desirable to know</b> <ul style="list-style-type: none"> <li>• Depth perception</li> <li>• Glare recovery</li> </ul>	15
4	Preservation and protection of vision	<b>Must Know</b> <ul style="list-style-type: none"> <li>• Hazards: Physical and radiation, preventive measures, managing sport eye Injuries</li> </ul>	5

**Master of Optometry**  
**Semester-I**  
**Paper -6**  
**CLINICS -I**

**Total Hours-40**

Course Objectives: This course includes minimum of 40 hours of supervised clinical training .The clinics involve primary care clinics and community work. The objective of clinics in this semester is to be able to examine the eye and understand the basic eye procedures with clinical management. A logbook is maintained and 30 case sheets with complete management and follow up are mandatory for submission.

Course Outlines:

- Communication and personal conduct
- Visual function and Ametropia
- Ocular examination
- Ocular abnormalities
- Binocular vision
- Visual impairment

**Master of Optometry  
Semester-II  
Paper-I**

**Research methodology, Biostatistics and Hospital Management**

**Total hours: 40**

S.No	Topic to be covered	Domain	Teaching Hours
1	Introduction research methodology	<p><b>Must know</b></p> <ul style="list-style-type: none"> <li>• Introduction to research methods,</li> <li>• Variable in research</li> <li>• Reliability and validity in research</li> <li>• Conducting a literature review</li> <li>• Formulation of research problems and writing research questions</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Hypothesis, Null and research Hypothesis, Type I and type II errors in Hypothesis testing.</li> </ul>	5
2	Data collection	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Experimental and non experimental research designs,</li> <li>• Sampling methods, data collection, observation method, Interview method, questionnaires and schedules construction</li> </ul>	5
3	Research Frame work	<p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Ethical issues in research</li> <li>• Principles and concepts in research ethics- confidentiality and privacy informed consent</li> <li>• Writing research proposals</li> <li>• Development of conceptual framework in research</li> </ul>	5
4	Introduction to statistics	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Introduction to statistics</li> <li>• Classification of data, source of data,</li> <li>• Method of scaling- nominal, ordinal, ratio and interval scale</li> </ul> <p><b>Nice to know</b></p> <ul style="list-style-type: none"> <li>• Measuring reliability and validity of scales</li> </ul>	5
5	Data sampling	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Measures of central tendency,</li> <li>• Measures of dispersion, skewness and kurtosis, sampling, sample size determination.</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Concept of probability and probality distributions- binomial probability distribution, poison probability distribution and normal probability distribution</li> </ul>	5
6	Data correlation	<p><b>Desirable to know</b></p>	5

		<ul style="list-style-type: none"> <li>• Correlation-Karl person, spearman's rank correlation methods, regression analysis, testing hypothesis-chi square test, student's test, NOVA</li> </ul>	
7	Health care- An Overview	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Functions of Hospital administration</li> <li>• Modern techniques in Hospital management</li> <li>• Challenges and strategies of Hospital management</li> </ul> <p>Administrative Functions–</p> <ul style="list-style-type: none"> <li>• Planning, Organizing, Staffing, Leading and Controlling Organizational Structure,</li> <li>• Motivation and leadership.</li> <li>• Designing health care organization</li> </ul>	5
	Hospital Management	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Medical record, House-keeping services.</li> <li>• Laboratory performance.</li> <li>• Management of biomedical waste.</li> <li>• Total patient care – indoor and outdoor.</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Nursing and ambulance resources.</li> <li>• Evaluation of hospital services.</li> </ul> <p><b>Nice To know</b></p> <ul style="list-style-type: none"> <li>• Quality assurance.</li> <li>• Record reviews and medical audit.</li> </ul>	5

**Master of Optometry**  
**Semester-II**  
**Paper-2**  
**BINOCULAR VISION II & VISION THERAPY**

**Total hours: 40**

S.No	Topic To be covered	Domain	Teaching Hours
1	Strabismus	<b>Must know</b> <ul style="list-style-type: none"> <li>• Diagnosis of strabismus anomalies, clinical model of visual processing, diagnostic evaluation of strabismus, diagnostic assessment and prognosis</li> </ul>	5
2	Management strategy and treatment options	<b>Must know</b> <ul style="list-style-type: none"> <li>• Lens therapy, prism therapy, occlusion therapy, Active therapy, pharmacological therapy</li> </ul> <b>Nice to Know</b> <ul style="list-style-type: none"> <li>• surgical therapy</li> </ul>	5
3	Management of sensory anomalies	<b>Must Know</b> <ul style="list-style-type: none"> <li>• Treatment of suppression, treatment of functional Amblyopia, treatment of anomalous correspondence</li> </ul>	5
4	Strabismus management strategies	<b>Must Know</b> <ul style="list-style-type: none"> <li>• Management of Exotropia, management of Esotropias, management of vertical strabismus.</li> </ul>	5
5	Nystagmus	<b>Must know</b> <ul style="list-style-type: none"> <li>• Classification, types and management options</li> </ul>	5
6	Vision therapy and vision therapy techniques	<b>Must Know</b> <ul style="list-style-type: none"> <li>• Introduction and general concepts, fusional vergence, voluntary convergence &amp; antisuppression procedures, Accommodative procedures, ocular motility procedures, binocular vision and accommodative problems associated with computer use</li> </ul> <b>Desirable to know</b> <ul style="list-style-type: none"> <li>• vision therapy software, patients management issues in vision therapy, vision therapy and optometry practice</li> </ul>	12

**Master of Optometry  
Semester-II  
Paper-3  
Low Vision Care-II**

**Total marks: 200**

**Total hours:40**

S.No	Topic to be covered	Domain	Teaching Hours
1	Optical low vision devices	<b>Must Know</b> <ul style="list-style-type: none"> <li>• Relative size magnification, large- print clocks, timers, calculators, remote controls, watches, books, glare and contrast control , posture and comfort maintenance devices, hand writing and written communication devices, orientation and mobility devices, sensory substitution device, medical management device</li> </ul>	10
2	Computer assistive technology for low vision patient	<b>Must Know</b> <ul style="list-style-type: none"> <li>• CCTV</li> <li>• Electronic magnifier</li> <li>• Hand held electronic magnification</li> </ul> <b>Nice to know</b> <ul style="list-style-type: none"> <li>• mobility devices</li> </ul>	5
3	Orientation and mobility	<b>Must Know</b> <ul style="list-style-type: none"> <li>• Orientation and mobility skills, pre cane skills, sighted guide technique, using a cane, using other senses of orientation</li> </ul> <b>Desirable to know</b> <ul style="list-style-type: none"> <li>• Do's and Don'ts for orientation and mobility, driving with low vision</li> </ul>	5
4	Using functional and residual vision to achieve independent living	<b>Desirable to know</b> <ul style="list-style-type: none"> <li>• Visual functioning, how to enhance visual functioning, residual vision, classification of activities of daily living, basic step towards independent living, how to achieve independent living</li> </ul>	5
5	Practice management	<b>Must Know</b> <ul style="list-style-type: none"> <li>• Planning, infrastructure needed to start, marketing, management of practice</li> </ul> <b>Desirable to know</b> <ul style="list-style-type: none"> <li>• financial planning and personnel management</li> </ul>	5
6	The vision related rehabilitation network	<b>Must know</b> <ul style="list-style-type: none"> <li>• Rehabilitation services network</li> <li>• state rehabilitation programs and services</li> <li>• Private rehabilitation programs &amp; services</li> </ul> <b>Nice to Know</b> <ul style="list-style-type: none"> <li>• Low vision practitioner role in rehabilitation services network, building a referral network</li> <li>• Ensuring accessibility to service, financial resources</li> </ul>	10

**Master of Optometry**  
**Semester –II**  
**Paper-4**  
**CONTACT LENS-I**

**Total hours: 40**

S.No	Topic to be covered	Domain	Teaching Hours
1	Introduction to contact lens	<p><b>Must know</b></p> <ul style="list-style-type: none"> <li>• Contact lens verification Contact lens materials and manufacturing</li> <li>• Optics of contact lenses</li> <li>• Soft contact lens design, rigid gas permeable contact lens design</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• History of contact lenses</li> </ul>	8
2	Contact lens fitting	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Introduction to contact lens fitting</li> <li>• Spherical SCL fitting and the effect of parameter changes, Astigmatism, Astigmatism and Toric SCL</li> </ul> <p><b>Desirable to Know</b></p> <ul style="list-style-type: none"> <li>• Fitting Spherical RGP contact lenses</li> <li>• The effects of RGP contact lens parameter changes on lens fitting</li> </ul> <p><b>Must know</b></p> <ul style="list-style-type: none"> <li>• Toric SCL types and designs</li> <li>• Fitting Toric soft contact lenses</li> </ul>	8
3	Examination procedures for contact lens patients	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• The routine preliminary examination</li> <li>• Options for wear modality and lens replacement</li> <li>• Lens dispensing and patient education</li> <li>• Slit-lamp examination of the contact lens patient</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Conducting the after- care visit</li> </ul>	8
4	Care and maintenance	<p><b>Must know</b></p> <ul style="list-style-type: none"> <li>• Overview of care and maintenance</li> <li>• Contact lens care products</li> <li>• Care and maintenance of soft contact lenses, care and maintenance of RGP lenses</li> <li>• Contact lens deposits</li> </ul>	8
5	Basic prosthesis and the various conditions where they are applied	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Basics of prosthesis</li> <li><input type="checkbox"/> Types of prosthesis</li> <li><input type="checkbox"/> Indication</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Technique employed, complications</li> <li><input type="checkbox"/> Advancement and results</li> </ul>	8



# Master of Optometry

## Semester-II

### Paper -5

#### OCULAR DISEASES AND DIAGNOSTIC PROCEDURES-II

Total hours: 40

S.No	Topic to be covered	Domain	Teaching Hours
1	Posterior segment	<b>Must Know</b> <ul style="list-style-type: none"><li>• Glaucoma- Basic aspect, evaluation, clinical profile, management and neuro-protection</li><li>• Retina and Vitreous diseases</li><li>• Orbit- Anophthalmic socket, eyelid anomalies</li><li>• Ocular manifestation of systemic diseases</li></ul> <b>Desirable to know</b> <ul style="list-style-type: none"><li>• Neurophthalmology&amp; electrophysiology, Optic nerve anomalies and neuropathy</li><li>• Ocular trauma- injuries to eye and chemical injuries, ocular emergencies</li></ul>	20
2	Electroretinogram	<b>Must know</b> <ul style="list-style-type: none"><li>• ERG recording and limitation</li><li>• Clinical protocol for ERG, flash ERG and pattern ERG</li></ul> <b>Desirable to Know</b> <ul style="list-style-type: none"><li>• Full-Field Electroretinogram</li><li>• Intensity response function and ERG components</li><li>• Standardized ERGs with isolation and cone components</li></ul> <b>Nice to know</b> <ul style="list-style-type: none"><li>• Short- wavelength cone ERGs multifocal ERGS</li><li>• On and off response of multifocal ERGs.</li></ul>	10
3	EOG	<b>Must Know</b> <ul style="list-style-type: none"><li>• Basic science and procedure of EOG</li></ul> <b>Nice To Know</b> <ul style="list-style-type: none"><li>• Arden's ratio</li></ul> <b>Desirable to Know</b> <ul style="list-style-type: none"><li>• Common conditions where EOG are informative: retinitis pigmentosa, macular dystrophy, Stargardt's diseases , maculopathy</li></ul>	5
4	VEP	<b>Must Know</b> <ul style="list-style-type: none"><li>• Flash VEP, Pattern VEP</li><li>• Common condition where VEP are informative: Cortical blindness, Optic neuritis, Optic atrophy, cranial inflammation or trauma</li></ul>	5

**Master of Optometry**  
**Semester –II**  
**Paper-6**  
**Clinic-II**

**Total Hours-40**

Course Objectives: This course includes minimum of 40 hours of supervised clinical training .The clinics involve primary care clinics and community work. The objective of clinics in this semester is to be able to examine the eye and understand the basic eye procedures with clinical management. A logbook is maintained and 30 case sheets with complete management and follow up are mandatory for submission.

Course Outlines:

- Communication and personal conduct
- Visual function and Ametropia
- Ocular examination
- Ocular abnormalities
- Binocular vision
- Visual impairment

**Master of Optometry**  
**Semester-III**  
**Paper-I**  
**Contact lens-II**

**Total hours: 40**

S.No	Topic to be covered	Domain	Teaching Hours
1	Cornea in contact lens wear	<p><b>Must know</b></p> <ul style="list-style-type: none"> <li>• Corneal oxygen requirements and the effect of hypoxia, corneal oxygenation with contact lenses contact lens characteristics and oxygen transmission</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Microbiology and contact lens wear</li> <li>• Ocular host defense systems and contact lens wear</li> </ul>	5
2	Contact lens related ocular complications	<p><b>Must know</b></p> <ul style="list-style-type: none"> <li>• Patient symptoms &amp; clinical signs</li> <li>• Soft contact lens complication and their management</li> <li>• RGP contact lens complications and their management</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Diagnosis and management of dry in contact lens wear</li> </ul>	5
3	Special contact lens fitting	<p><b>Must know</b></p> <ul style="list-style-type: none"> <li>• Keratoconus and contact lenses</li> <li>• Presbyopia and contact lens</li> <li>• Children's and contact lens</li> <li>• Aphakia and contact lens</li> <li>• Refitting PMMA lens wears</li> <li>• Therapeutic contact lens</li> <li>• Tinted contact lens</li> <li>• Orthokeratology</li> </ul> <p><b>Nice to Know</b></p> <ul style="list-style-type: none"> <li>• Refractive surgery and contact lens</li> </ul>	10
4	Special topics	<p><b>Must know</b></p> <ul style="list-style-type: none"> <li>• Fitting Scleral contact lens</li> <li>• Fitting an ocular prosthetics contact lens</li> <li>• Rose's -k contact lens Fitting</li> <li>• Hybrids contact lens fitting</li> <li>• Advanced techniques and instrumentations,</li> <li>• Contact lens for sporting activities</li> <li>• The working environment and contact lenses</li> </ul>	15
5	Business aspect of contact lens practice	<p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Building a successful contact lens practice,</li> <li>• Marketing a contact lens practice</li> <li>• Managing a contact lens practice</li> <li>• Standards of practice</li> </ul>	5

**Master of Optometry  
Semester-III  
Paper-2  
DISPENSING OPTICS**

**Total hours: 40**

S.No	Units	Contents	Teaching Hours
1	Ophthalmic lens types	<b>Must know</b> <ul style="list-style-type: none"> <li>• Lens materials properties of lens (Refractive index)</li> <li>• Base curve, specific gravity, Abbe value, UV cut off etc)</li> <li>• Prism, Tints and coating</li> </ul>	5
2	Bifocal / Multifocal Progressive addition lenses	<b>Must know</b> <ul style="list-style-type: none"> <li>• Dispensing PAL, PAL trouble shooting</li> </ul>	5
3	Spectacle frame	<b>Must Know</b> <ul style="list-style-type: none"> <li>• Facial fitting principles</li> <li>• Spectacle delivery</li> <li>• Dispensing problem prescriptions</li> <li>• Frame types and parts</li> <li>• Measuring the interpupillary distance and pupilometer special purpose frame ( Sports, Kids, reading)</li> </ul> <b>Desirable to know</b> <ul style="list-style-type: none"> <li>• Classification of spectacle frames- material, weight, temple position, coloration frame construction, frame measurement and markings</li> <li>• Frame manipulation and repair</li> <li>• facial measurement and frame choice</li> </ul>	10
4	Lens ordering	<b>Must Know</b> <ul style="list-style-type: none"> <li>• Lens edge thickness calculation</li> <li>• Writing spectacle lens order</li> <li>• Facial measurement- IPD measurement and measuring height ( Single vision, multifocal , progressive)</li> </ul> <b>Desirable to know</b> <ul style="list-style-type: none"> <li>• Measurement of effective diameter minimum blank size, glazing and edging hand on</li> </ul>	10
5	Lens verification	<b>Must know</b> <ul style="list-style-type: none"> <li>• Lens verification and axis marking &amp; fitting all lens types</li> <li>• facial checking of finished spectacle with frame adjustment, delivery and follow-up</li> </ul> <b>Desirable to know</b> <ul style="list-style-type: none"> <li>• Troubleshooting complaints and handling patients questions, optical centre marking, Axis marking, surface power measurement using Geneva lens measure, identify various types of frame and mounting</li> </ul>	10

**Master of Optometry**  
**Semester-III**  
**Paper -3**  
**REFRACTIVE SURGERY**

**Total hours: 40**

S.No	Topic to be covered	Domain	Teaching Hours
1	Background	<b>Must Know</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> History of refractive surgery</li> <li><input type="checkbox"/> Radial keratotomy (RK)</li> <li><input type="checkbox"/> Photorefractive keratectomy (PRK)</li> <li><input type="checkbox"/> Laser InSituKeratomileusis (LASIK)</li> <li><input type="checkbox"/> Sub Bowman's Keratomileusis (SBK)</li> </ul>	5
2	Corneal management	<b>Must Know</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Corneal topography report, Pentacam</li> <li><input type="checkbox"/> Evaluation of videokeratography</li> </ul>	10
3	Microkeratomes	<b>Desirable to Know</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Types of microkeratomes</li> <li><input type="checkbox"/> Flaps of different thickness - when, why and How</li> <li><input type="checkbox"/> Risk &amp; complications</li> <li><input type="checkbox"/> Flap creation using femtosecond laser</li> <li><input type="checkbox"/> Femtosecond LASIK vs Conventional LASIK</li> <li><input type="checkbox"/> Customized ablation- why use customized ablation</li> </ul> <b>Nice to know</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Technology used for customized ablation, customized ablation methods</li> </ul>	10
4	Complications of refractive procedures	<b>Must Know</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Microkeratome related complications</li> <li><input type="checkbox"/> laser ablation related complication, postoperative complication, management</li> </ul>	5
5	Introduction to phakic IOLs and corneal rings	<b>Must Know</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Preoperative evaluation &amp; Inclusion criteria</li> <li><input type="checkbox"/> Surgical procedures</li> <li><input type="checkbox"/> Retinal risks of RLE, Avoiding retinal detachment, Informing patient of risks, Postoperative issues, Problems of phakic IOLs</li> </ul> <b>Nice to know</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Overview of refractive lens exchange( RLE), Deciding to perform RL</li> </ul>	10

**Master of Optometry  
Semester-III  
Paper -4  
Environmental Optometry**

**Total hours: 40**

S.No	Topic to be covered	Domain	Teaching Hours
1	Introduction	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Environmental optometry&amp; Occupational Optometry</li> <li>• History taking in detail.</li> <li>• Definition of accident, Hazards,</li> <li>• Type of hazard</li> <li>• Significance or important of hazards</li> </ul>	5
2	Injury to worker consequence / Hazards and their consequences	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Employees, employer and community aspects</li> <li>• Scope of prevention</li> <li>• Indiana scenario causes and techniques to prevent accident</li> <li>• ( PPE Strategies)</li> </ul>	5
3	Types of Hazards/ Optical Hazards	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Physical, Chemical, Heat thermal, electrical and biological.</li> <li>• Radiation ,Electromagnetic spectrum ,UV &amp; IR hazards and consequences on visual system</li> </ul>	5
4	Safety organization / Recognizaton of hazards in the work place	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Introduction to ANSI, BSI, OSHA, ILO, CLI-DGFASLI</li> <li>• Factory Visit</li> </ul>	5
5	Role of ergonomics/ Lighting of work place	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Factors: Posture, Position of visual attention, Head movement and eye movement, Indoors/ outdoors , Sound and temperature</li> </ul> <p><b>Desirable to know</b></p> <ul style="list-style-type: none"> <li>• Significant , factors to be considered, normative data of illumination levels , calculating ambient illumination in the work place</li> </ul>	5
6	Review of test and matching the standards/  Types of personal protective equipment	<p><b>Must Know</b></p> <ul style="list-style-type: none"> <li>• Visual acuity, color Vision , Contrast, Steropsis, Glare testing and light and dark adaption assessment , standards for various occupation</li> <li>• Chemical goggles, Face shield, Welding Goggle, Impact goggle, safety spectacles. Plastic face shield methods to incorporate optical correction in them.</li> </ul>	10

7	Standards of vision and values to be required for occupational workers	<b>Must Know</b> <ul style="list-style-type: none"><li>• Estimating required visual acuity using nomogram and formula</li><li>• Drivers of various countries: Minimum vision requirement for distance, Near, Field, Color Vision and stereopsis.</li><li>• Indian Railways: A, B , C grades</li><li>• Indian Navy</li><li>• National defense academy</li><li>• Factory Acts</li></ul>	5
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**Master of Optometry**  
**Semester -III**  
**CLINIC-III**  
**Paper-5**

**Total hours: 40**

Course Objectives: This course includes minimum of 40 hours of supervised clinical training .The clinics involve primary care clinics and community work. The objective of clinics in this semester is to be able to examine the eye and understand the basic eye procedures with clinical management. A logbook is maintained and 30 case sheets with complete management and follow up are mandatory for submission.

Course Outlines:

- Communication and personal conduct
- Visual function and Ametropia
- Ocular examination
- Ocular abnormalities
- Binocular vision
- Visual impairment



**Master of Optometry**  
**Semester-IV**  
**Specialty clinical Posting**  
**Paper-I**

**Total Hours- 180**

Course objectives: It is expected that upon completion the student will be able to carry out the standard clinical procedures safely and efficiently.

All students will have to choose any one elective subject for their specialty in master of Optometry. Students will be post in internship as their specialty.

<b>Paper code</b>	<b>Subject</b>	<b>Posting hours</b>	<b>Total credits</b>
MOPT	Retina & Low Vision	120 hours /Semester	4
MOPT	Glaucoma & Low Vision		
MOPT	Pediatric, Binocular Vision & Vision Therapy		
MOPT	Cornea and Contact lens		

**Master of Optometry**  
**Semester-IV**  
**CLINICAL DISSERTATION**  
**Paper -2**

The research project is to be carried out over a period of approximately 6 months and will be carried out in the hospitals, subject to approval by all concerned. Each student will select research project with their respective supervisors. The projects will be selected such that a student can reasonably be expected to make an original contribution to the chosen area of research within the time period allotted. The purpose of the project is to provide the student with training in academic research and acquisition of practical skills, including the design of a research project, planning of experiments, dealing with practical problems, recording of, presenting and analyzing data.

**Unit I- Thesis Proposal Development** is an independent tutorial conducted by the student's advisor, and involves a comprehensive literature survey of the chosen research area. Through regular meetings, the student and advisor discuss this literature in detail and the topic for research project will be finalized in the third semester.

**Unit II- Thesis proposal** Each student must submit to the university with the signed approval of the advisor, a thesis proposal defining the thesis project, the methods and design of the experiments needed for completion, the progress to date and plans for completion in the third semester.

**Unit III – Thesis preparation:** This is involving preparation of the thesis. The thesis must include a cover page, abstract, table of contents, introduction of the thesis topic with a comprehensive review of literature, appropriately organized methods, results and discussion section for the experiment performed and final conclusions section summarizing the outcome of the project. The student should submit a draft of the thesis to the advisor by the end of the fourth semester.