ROYAL GLOBAL UNIVERSITY

GUWAHATI

(ROYAL SCHOOL OF MEDICAL & ALLIED SCIENCES)

(RSMAS)

COURSE STRUCTURE AND SYLLABUS

(BASED ON NATIONAL EDUCATION POLICY 2020)

DEPARTMENT OF OPTOMETRY

Master in Optometry

(2 YEARS SINGLE MAJOR)

W.E.F

AY: 2024 - 25

MASTER OF OPTOMETRY (M. OPTM)

PROGRAMME STRUCTURE

MOPT 1st SEMESTER							
Sl. No.	**SUBJECT CODE**	**NAME OF SUBJECT**	**L**	**T**	**P**	**C**	**TCP**
CORE SUBJECTS							
1	**OPT244C101**	PEDIATRIC OPTOMETRY & BINOCULAR VISION	**4**	**0**	**0**	**4**	**4**
2	**OPT244C102**	RESEARCH METHODOLOGY & BIOSTATISTICS	**4**	**0**	**0**	**4**	**4**
3	**OPT244C103**	OCULAR DISEASES AND DIAGNOSTICS I	**4**	**0**	**0**	**4**	**4**
4	**OPT244C104**	ADVANCED CONTACT LENS I	**4**	**0**	**0**	**4**	**4**
DISCIPLINE SPECIFIC-DSE (ANY ONE)							
7	**OPT244C105**	EPIDEMIOLOGY & COMMUNITY EYECARE	**4**	**0**	**0**	**4**	**4**
8	**OPT244C106**	NEURO OPTOMETRY	**4**	**0**	**0**	**4**	**4**
9.		SWAYAM COURSE					
		Total				**24**	

MOPT 2nd SEMESTER							
Sl. No.	**SUBJECT CODE**	**NAME OF SUBJECT**	**L**	**T**	**P**	**C**	**TCP**
CORE SUBJECTS							
1	**OPT244C201**	LOW VISION AND GERIATRIC OPTOMETRY	**4**	**0**	**0**	**4**	**4**
2	**OPT244C202**	OCULAR DISEASES AND DIAGNOSTICS II	**4**	**0**	**0**	**4**	**4**
3	**OPT244C203**	ADVANCED DISPENSING OPTICS	**4**	**0**	**0**	**4**	**4**
4	**OPT244C111**	CLINICS (SPECIALTY)	**0**	**0**	**8**	**4**	**4**

DISCIPLINE SPECIFIC-DSE (ANY ONE)							
8	**OPT244C204**	BUSINESS AND CLINICAL ASPECTS IN OPTOMETRY	**4**	**0**	**0**	**4**	**4**
9	**OPT244C205**	ADVANCED GLAUCOMA	**4**	**0**	**0**	**4**	**4**
10.		SWAYAM COURSE					
		Total				**24**	

MOPT 3rd SEMESTER							
Sl. No.	**SUBJECT CODE**	**NAME OF SUBJECT**	**L**	**T**	**P**	**C**	**TCP**
CORE SUBJECTS							
1	**OPT244C301**	LOW VISION CARE & REHABILITATION	**4**	**0**	**0**	**4**	**4**
2	**OPT244C302**	RECENT ADVANCES IN OPTOMETRY	**4**	**0**	**0**	**4**	**4**
3	**OPT244C303**	EVIDENCE-BASED PRACTICE	**4**	**0**	**0**	**4**	**4**
4	**OPT244C304**	PILOT RSEARCH	**0**	**0**	**0**	**0**	**8**
DISCIPLINE SPECIFIC-DSE (ANY THREE)							
6	**OPT244C305**	EYE BANKING	**4**	**0**	**0**	**4**	**4**
7	**OPT244C306**	CLINICAL PSYCHOLOGY	**4**	**0**	**0**	**4**	**4**
8	**OPT244C307**	VISION THERAPY	**4**	**0**	**0**	**4**	**4**
9	**OPT244C308**	OCULAR PROSTHETICS	**4**	**0**	**0**	**4**	**4**
10	**OPT244C309**	ADVANCEMENT IN OPTOMETRY	**4**	**0**	**0**	**4**	**4**
		Total				**48**	

MOPT 4TH SEMESTER							
Sl. No.	**SUBJECT CODE**	**NAME OF SUBJECT**	**L**	**T**	**P**	**C**	**TCP**
CORE SUBJECTS							
1	**OPT244C401**	CLINIC (GENERAL)	**0**	**0**	**4**	**4**	**4**
2	**OPT244C402**	CLINIC (SPECIALITY)	**0**	**0**	**4**	**4**	**4**
3	**OPT244C403**	DISSEERTATION	**0**	**0**	**0**	**12**	**12**
		Total				**20**	

Level -Semester I

Course: Core

Title of the Paper: Paediatric Optometry & Binocular vision
Subject Code: OPT244C101

Marks/ Credits: 100/4

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objectives:

The objective of the course is that the student should be able to understand the basic concepts behind visual perception, binocular vision anomalies, and the management and co-management of strabismic, non-strabismic binocular vision abnormalities, and amblyopia after completing the course.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Apply** the basic concept behind visual perception to clinical practice.	**BT 3**
CO 2	**Use** the concepts of binocular single vision for the management of binocular vision anomalies	**BT 3**
CO 3	**Analyze** binocular vision disorders and relate it with amblyopia.	**BT 4**

COURSE OUTLINE:

Modules	Course Content	Periods
I.	Refractive Development: Early Refractive Development, Visually Guided control of Refractive State, Infant Accommodation and Convergence, Oculomotor Function: Conjugate Eye Movements of Infants, Development of the Vestibuloocular and Optokinetic reflexes, Spatial and Chromatic Vision; Binocular Vision: Grades of BSV, Horopter, Panum's area and Panum's space, Stereopsis in Infants and its developmental relation to visual acuity, Sensorimotor Adaptation and Development of the Horopter, Extra ocular muscles	12
II.	Visual processing in retina: Development of the Human Visual Field, Accommodation, Convergence, Infant Color vision, Commitant Squint, Management of commitant squint;	12
III.	Retinal and cortical Development and Amblyopia: Abnormal Visual Development, What next in Infant Research, Clinical management of Amblyopia	12
IV.	Assessment of Child Vision and Refractive Error: Refractive Routines in the Examination of Children, Cycloplegic Refraction, Color Vision Assessment in Children, Dispensing for the Child patient, Pediatric Contact Lens Practice, Dyslexia and Optometry Management, Management Guidelines –Ametropia, Contant Strabismus, Management Guidelines, Amblyopia, Accommodation and Vergence anomalies, Myopia control	12
TOTAL		48

Textbooks

1. **Scheiman, M., & Wick, B.** (2019). *Clinical Management of Binocular Vision: Heterophoric, Accommodative, and Eye Movement Disorders* (5th ed.). Wolters Kluwer.
2. **Evans, B. J. W.** (2007). *Pickwell's Binocular Vision Anomalies* (5th ed.). Butterworth-Heinemann.
3. **Leat, S. J., Shute, R. H., & Westall, C. A.** (2010). *Pediatric Eye Examination Handbook*. Butterworth-Heinemann.

Reference books

1. **Grosvenor, T. P.** (2007). *Primary Care Optometry* (5th ed.). Butterworth-Heinemann.
2. **Cassin, B., & Solomon, S.** (2022). *Dictionary of Eye Terminology* (7th ed.). Triad Publishing Company.

Level: Semester I

Course: Core

Subject: Research Methodology & Biostatistics

Subject Code: **OPT244C202**

Total marks/ credits: 100 /4

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objective:

The course objective is that after completion of this course the students will be able to perform independent research within the department and help the department and the team for treatment planning of the patient.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Define** the principles of research and biostatistics to health practice including the design and implementation of health-related research studies.	**BT 1**
CO 2	**Outline** processing and analysis of data.	**BT 2**
CO 3	**Plan and execute** a research study, including clinical trials.	**BT 3**
CO 4	**Undertake** independent research in the field of physiotherapy.	**BT 4**

COURSE OUTLINE:

MODULE	TOPICS & COURSE CONTENT	PERIODS
I	**RESEARCH METHODOLOGY:** 1. Introduction to research 2. Types of research 3. Defining a research question 4. Study design: types a. Case study, Case series, longitudinal cohort, Pre post design, Time series design, repeated measures design, Randomized control design. 5. Sampling design, calculating minimum sample size based on design 6. Measurement: Properties of measurement: reliability, validity, responsiveness, MCID.	12
II	7. Outcome measures: Use of outcome measures in rehabilitation research 8. Data collection 9. Hypothesis- Type I & II bias 10. Asking clinical questions 11. Translating of evidence into practice: strategies 12. Use of clinical practice guidelines, clinical pathways, prediction rules to inform practice.	12
III	**BIOSTATISTICS:** 1. Measures of central tendency 2. Normal distribution & normal curve 3. Descriptive Statistics and measurement variability 4.. Statistical inference 5.. Comparison of group means: T-test 6. Analysis of variance 7. Multiple comparison tests 8. Non parametric tests 9. Correlations 10. Regression 11. Analysis of frequencies: Chi square 12. Statistical measure of reliability 13. Power analysis – Determining sample size 14. Epidemiological Measures – Rate, Ratio, Proportion, Incidence and prevalence, Relative risk, Risk ratio, Odds ratio.	12

IV	**SCIENTIFIC WRITING:** 1. Definition and kinds of scientific documents – Research paper, Review paper, Book, Reviews, Thesis, Conference and project reports (for the scientific community and for funding agencies). 2. Publication – Role of author, Guide, Co-authors. 3. Structure, Style and contents; Style manuals (APA, MLA); Citation styles: Footnotes, References; Evaluation of research 4. Significance of Report writing; Different steps in Report writing; Mechanics and precautions of writing research reports Oral and poster presentation of research papers in conferences/symposia; Preparation of abstracts. 5. Structure of Thesis and Content – Preparing Abstract	12
	TOTAL	**48**

Text Books:

1. Kothari, C. R., & Garg, G. (2019). *Research Methodology: Methods and Techniques* (4th ed.). New Age International Publishers.
2. Bowers, D., House, A., & Owens, D. (2011). *Understanding Clinical Papers* (2nd ed.). Wiley-Blackwell.
3. Mahajan, B. K. (2010). *Methods in Biostatistics for Medical Students and Research Workers* (7th ed.). Jaypee Brothers Medical Publishers.

Reference books

4. Suresh, K. P., Chandrashekara, S., & Suresh, G. (2015). *Sample Size Estimation and Power Analysis for Clinical Research Studies*. NIN-ICMR.
5. Panik, M. J. (2014). *Statistical Inference: A Short Course*. Wiley.

Level: Semester I

Course: Core

Subject: Ocular Diseases and Diagnostics I

Subject Code: **OPT244C103**

Total marks/ credits: 100 /4

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objective: The course aims to allow clinical decision-making, management, and co-management of illnesses of the anterior component of the eye using an evidence-based approach. Enhancing the reading ability of scientific journals for more evidence-based treatment with current knowledge of diseases.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Observe** signs and symptom to reach to the diagnosis.	**BT 4**
CO 2	**Analyse** the ocular structures to rule out any abnormalities	**BT 4**
CO 3	**Evaluate** the given data and case and formulate a suitable diagnostic and management plan	**BT 5**

Course Outline:

MODULE	**TOPICS & COURSE CONTENT**	**PERIODS**
I	**Imaging and diagnostics in Anterior segment and adnexa:** Clinically relevant anatomy of the anterior structures of the eye; Imaging techniques like Slit lamp, UBM, Corneal topography, Anterior segment OCT. **Orbit and adnexa:** Orbit diseases; Developmental Orbital Disorders	**12**
II	**Ocular inflammatory disease- Anterior segment:** Anterior uveitis Clinical examination; Systemic diseases; iritis, iridocyclitis & anterior cyclitis. **Disorders of eyelid:** Anatomy of the lid; Inflammatory lid disorders; Anomalies in the position of the lashes and Lid Margin;	**12**
III	**Lacrimal system and dry eye:** Lacrimal disorders; Dry eye syndrome and evaluation **Disorders of conjunctiva and sclera:** Conjunctivitis; Conjunctival haemorrhage; Pterygium, pinguecula, conjunctival cyst; Scleritis Episcleritis	**12**
IV	**Disorders of Cornea:** Corneal Opacity; Corneal abrasion, ulcers; Corneal degeneration. **Corneal refractive surgery:** Refractive surgery- Principles, clinical indication & eligibility assessment; Pre evaluation & interpretation; Surgical procedure, post evaluation & follow up	**12**
	TOTAL	**48**

Text Books:

1. Kanski, J. J., Bowling, B., Salmon, J. F., Nischal, K. K., & Biswas, S. (2015). *Clinical Ophthalmology: A Systematic Approach* (8th ed.). Elsevier.
2. Khurana, A. K. (2015). *Comprehensive Ophthalmology* (6th ed.). Jaypee Brothers Medical Publishers.
3. Yanoff, M., & Duker, J. S. (2018). *Ophthalmology* (5th ed.). Elsevier.

Reference books

1. American Academy of Ophthalmology. (2023). *Basic and Clinical Science Course (BCSC) Series*. American Academy of Ophthalmology.
2. Gilbert, G., & Foster, A. (2008). *Childhood Blindness and Eye Diseases in Developing Countries*. WHO Press.

Level : Semester I

Course: Core

Title of the Paper: Advanced Contact lens I
Subject Code: OPT244C104

Marks/ Credits: 100/4

L-T-P-C: 4-0-0-4 **Total credits: 4**

Course Objectives:

The learner should be able to grasp the corneal oxygen requirements and select the best suitable contact lens for a certain circumstance after completing the course. Contact lens management of ocular problems. Understand contact lens fitting for keratoconus and damaged corneas. The learner should also be able to comprehend the orthokeratology and myopia control theory.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Apply** the knowledge of contact lenses to illustrate the successful fitting of contact lenses	**BT 3**
CO 2	**Analyze** various types of fitting and be able to modify the fit appropriately	**BT 4**
CO 3	**Evaluate** the contact lens design for various kinds patients as per their visual needs	**BT 5**

COURSE OUTLINE:

Modules	Course Content	Periods
I.	Anatomy and Physiology of the Cornea and related Structures, Contact Lens Materials. SCL Materials & Review of manufacturing techniques, Comparison of RGP vs. SCL, Contact lens Modalities,	12
II.	Rigid Gas Permeable corneal lens fitting, Soft contact lens fitting, Toric Contact lens fitting, Fit assessment in Soft Contact Lenses: Types of fit – Steep, Flat, Optimum,	12
III.	Therapeutic contact lenses, Prosthetic contact lenses, Cosmetic contact lenses, Scleral contact lenses, Common Handling Instructions, Insertion & Removal Techniques, Do's and Don'ts in contact lens usage	12
IV.	Care and Maintenance, Follow up visit examination Complications of contact lenses, Ortho K lenses criteria and design, Rose K lenses criteria and design, Types of Rose K lenses, Prose Lenses, Presbyopic Contact lenses, Recent Advancements in Contact lens, Market availability of contact lenses.Keratoconus, Rose'Klenses ,Mini scleral lenses, , Orthokeratology, Ability to fit custom made ocular prosthesis 3. Ability to fit pediatric contact lenses	12
TOTAL		48

Text Books:

1. Anthony J. Phillips: Contact Lenses, 5thedition, Butterworth-Heinemann, 2006
2. Elisabeth A. W. Millis: Medical Contact Lens Practice, Butterworth-Heinemann, 2004

Reference books

1. E S. Bennett, V A Henry: Clinical manual of Contact Lenses, 3rd edition, Lippincott Williams and Wilkins, 2008

Level: Semester I

Course: DSE

Title of the Paper: DSE (Epidemiology & Community eyecare)

Subject Code: OPT244C105

L-T-P-C: 4-0-0-4 **Total credits: 4**

Course Objectives

At the end of the course, the student should be aware of epidemiology of ocular conditions, community-based eye care models (National and International). Construct the plan for eye health education programme and vision screening in the community

Course outcomes

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Apply** the concepts of epidemiology in patient care and community eye care.	**BT 3**
CO 2	**Analyse** the problems in community optometry and formulate a suitable management	**BT 4**

Course Outline :

MODULE	**TOPICS & COURSE CONTENT**	**PERIODS**
I	**Introduction to Epidemiology:** Basic Epidemiology; Epidemiology of Eye Diseases; Epidemiology: The Basic Science of Public Health	12
II	**Epidemiology of occupational eye diseases:** Occupational Eye Health; Strategies for preventive care for occupational eye disease; **Eye and Health Care Systems:** Public Health Programmes for blinding eye diseases; Pediatric eye conditions and ocular infection; Noncommunicable eye diseases	12

III	**Quality assurance in patient care services:** Basic of Quality and Compliance; Quality Assurance in Optometry practice; Quality assurance in community outreach activity	12
IV	**Evidence-Based Practice in community eye care:** EBP in community eye care	12
	TOTAL	**48**

Textbooks

1. Park, K. (2023). *Park's Textbook of Preventive and Social Medicine* (27th ed.). Bhanot Publishers.
2. Thylefors, B., Negrel, A. D., Pararajasegaram, R., & Dadzie, K. Y. (1995). *Global Data on Blindness: An Update*. WHO Programme for the Prevention of Blindness.
3. Sihota, R., & Tandon, R. (2020). *Parson's Diseases of the Eye* (23rd ed.). Elsevier.

Reference books

1. Johnson, G. J., Minassian, D. C., Weale, R. A., & West, S. K. (2003). *The Epidemiology of Eye Disease* (2nd ed.). Arnold Publishers.
2. Gilbert, C. E., & Foster, A. (2001). *Childhood Blindness in the Context of VISION 2020 — The Right to Sight*. Bulletin of the World Health Organization.

Course: DSE

Title of the Paper: Neuro Optometry
Subject Code: OPT244D106

Marks/ Credits: 100/3

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objectives:

To understand the neuroanatomy and neurophysiology of the visual system and its role in vision processing, to explore the impact of neurological disorders on vision and eye movements, including traumatic brain injury (TBI), stroke, and neurodegenerative diseases.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Use** and diagnose, manage visual dysfunctions associated with neurological disorders	**BT 3**
CO 2	**Analyse the** psychophysical testing methods	**BT 4**
CO 3	**Construct the** understanding of the neural mechanisms underlying vision by explaining the functional pathways	**BT 5**
CO 4	**Revise and** design and implement neuro-optometric rehabilitation strategies	**BT 6**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**
I.	Introduction to vision -Physiological optics and photceptor mosiac tutorial - Organization of retina and phototransduction - fundamentals of visual psychophysics Introduction to neurobiology -Neuroanatomy of the brain: Principles of - Fundamentals of single cell and contact electrophysiology: Action Potential, - Electrophysiology - Neurotransmitters - Neurochemistry of the brain tutorial - Electrophysiology	9
II.	**Main visual pathway** **-** Organization of LGN - Spatial Vision - Spatial vision / Contrast sensitivity 5 Organization of primary visual cortex - Regulation of sensitivity and adaptation tutorial - Dark and Light Adaptation 6 Depth Perception **-** Binocular vision and rivalry - Steroacuity / Binocular vision 7 Extra striate cortical pathways - Motion pathways in vision - Temporal sensitivity	9

III.	Chromatic vision - Organization of color in the visual brain - Demonstration of color 9 Atypical visual pathways and blindsight 3 - Clinical electrophysiology: Evoked tutorial (online class) potentials - Electrophysiology: ERG / VEP 10 Visual attention - Principle of imaging the brain tutorial - Visual Illusion 11 Developing the brain: Lessons from Evolution 3 - Visual development and Embryology tutorial - Clinical case reports	9
IV.	Primary Visual Pathway disorders - Bionic vision: how does a computer see tutorial - Clinical case reports Extra striate visual disorders - Eye movements tutorial - Clinical case reports Neural control of eye movements - Pupillary pathway tutorial - Clinical case reports	9
	TOTAL	36

Text Book:

1. Scheiman, M., & Wick, B. (2019). *Clinical Management of Binocular Vision: Heterophoric, Accommodative, and Eye Movement Disorders* (5th ed.). Wolters Kluwer.
2. Ciuffreda, K. J., Ludlam, D. P., & Kapoor, N. (2007). *Neuro-Optometric Rehabilitation* (1st ed.). Optometric Extension Program Foundation.
3. Suchoff, I. B., Ciuffreda, K. J., & Kapoor, N. (2001). *Visual and Vestibular Consequences of Acquired Brain Injury* (1st ed.). Slack Incorporated.

Reference books

1. Zasler, N. D., Katz, D. I., & Zafonte, R. D. (2012). *Brain Injury Medicine: Principles and Practice* (2nd ed.). Demos Medical Publishing.
2. Leigh, R. J., & Zee, D. S. (2015). *The Neurology of Eye Movements* (5th ed.). Oxford University Press.

SYLLABUS (1ST SEM)
SUBJECT NAME: SWAYAM COURSE **Subject Code:** **Course Level: 100** **SUBJECT CODE:** **SCHEME OF EVALUATION: (T)** **Total credits:**

Level: Semester -II

Course: Core

Title of the Paper: LOW VISION CARE AND REHABILITATION
Subject Code: OPT244C201

Marks/ Credits: 100/4

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objectives:

The objective of the course is to help students to diagnose, manage patients with vision impairment, and perform specialized diagnostics for patients with low vision with multiple disabilities.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** the best suitable low vision and functional assistive device for a particular condition and rehabilitation. This course gives. The outcomes of this course are: Thorough understanding of.	**BT 2**
CO 2	**Application** of the in-depth theoretical knowledge and clinical exposure in low vision care	**BT 3**
CO 3	**Demonstrate** the different causes of the low vision, its functional and psychosocial consequences	**BT 3**
CO 4	**Analyse** the patient's residual visual skills optimally and rehabilitate, help visually impaired individuals.	**BT 4**

COURSE OUTLINE:

Modules	Course Content	Periods
I.	Rehabilitation of Children and Youth with vision Impairment Rehabilitation of working –age Adults with Vision Impairment Rehabilitation of older Adults with Vision Impairment Functional consequences of vision Impairment	12
II.	Vision evaluation of Infants Educational assessment of visual function in Infants and Children Functional Evaluation of the Adult Functional orientation and Mobility	12
III.	Functional Assessment of Low Vision for Activities of Daily living Psychosocial assessment of adults with vision impairment Assistive Devices and Technology for Low Vision	12
IV.	Vision and Reading - Normal Vs Low Vision Clinical Implications of color vision Deficiencies	12
TOTAL		**48**

TEXT BOOKS:

1. Corn, A. L., & Erin, J. N. (Eds.). (2010). *Foundations of Low Vision: Clinical and Functional Perspectives* (2nd ed.). AFB Press.
2. Warren, D. H., & McLoughlin, J. A. (1995). *Helping Students with Visual Impairments: Adaptations Across the Curriculum*. Pearson.
3. Lueck, A. H., & Dutton, G. N. (Eds.). (2015). *Vision and the Brain: Understanding Cerebral Visual Impairment in Children*. AFB Press.

Reference books

1. Brilliant, R. L. (1999). *Essentials of Low Vision Practice* (1st ed.). Butterworth-Heinemann.
2. Whittaker, S. G., Scheiman, M. M., & Sokol-McKay, D. (2016). *Low Vision Rehabilitation: A Practical Guide for Occupational Therapists*. SLACK Incorporated.

Level: Semester -II

Course: Core

Title of the Paper: OCULAR DISEASES AND DIAGNOSTICS II
Subject Code: OPT244C202

Marks/ Credits: 100/3

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objectives:

The objective of the course is to help students to understand evidence-based approach to diagnosis, clinical decision making, management and co management of posterior segment diseases and to develop more reading ability of scientific journals for more evidence-based management with recent understanding of diseases.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** electro diagnostic procedures and interpret electro diagnostic reports 1.1 ERG 1.2 EOG 1.3 VEP 2. 4.	**BT 2**
CO 2	**Application** of stereoscopic fundus photography, ocular photography as tool for evidence based clinical decision making and progression analysis	**BT 3**
CO 3	**Demonstrate** posterior segment photography	**BT 3**
CO 4	**Analyse**, manage and co-manage diseases and disorders of posterior segment	**BT 4**

COURSE OUTLINE:

Modules	Course Content	Periods
I.	Refresher of posterior segment ocular diseases, diagnosis and therapeutics	9
II.	Surgical treatment of posterior segment diseases	9
III.	Posterior segment Diagnostics 2.2 ERG 2.3 EOG 2.4 VEP 2.5 OCT 2	9
IV.	Fundus photography 2.7 Neuro optometric diseases and disorders	9
TOTAL		36

Text Books:

4. Kanski, J. J., Bowling, B., Salmon, J. F., Nischal, K. K., & Biswas, S. (2015). *Clinical Ophthalmology: A Systematic Approach* (8th ed.). Elsevier.
5. Khurana, A. K. (2015). *Comprehensive Ophthalmology* (6th ed.). Jaypee Brothers Medical Publishers.
6. Yanoff, M., & Duker, J. S. (2018). *Ophthalmology* (5th ed.). Elsevier.

Reference books

3. American Academy of Ophthalmology. (2023). *Basic and Clinical Science Course (BCSC) Series*. American Academy of Ophthalmology.
4. Gilbert, G., & Foster, A. (2008). *Childhood Blindness and Eye Diseases in Developing Countries*. WHO Press.

Level: Semester II

Course: Core

Title of the Paper: ADVANCED DISPENSING OPTICS

Subject Code: OPT244C203

L-T-P-C: 4-0-0-4 **Total credits: 4**

Course Objectives

The course is designed with an objective to give the students to acquire the in-depth knowledge of historical, modern & advance dispensing practices.

Course Outcomes

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Explain** and **understand** the **s**kills/knowledge acquired along with the theory behind spectacle lenses.	**BT 1**
CO 2	**Classify** frames, their materials, types, advantages and disadvantages, calculations involved, when and how to prescribe	**BT 2**
CO 3	**Demonstration** design application and development of lenses, particularly of the methods of calculating their power and effect	**BT 3**
CO 4	**Analyzing** addition deals with role of optometrists in optical set-up.	**BT 4**

COURSE OUTLINE:

Modules	Topics (if applicable) & Course Contents	Periods
I.	Outline of lens surfacing and polishing, terminology used in Lens workshops: a) Ophthalmic raw materials – history and recent development b) Manufacturing of Ophthalmic lenses – Glass, Plastics and new generation materials. c) ISI Standards for ophthalmic lenses.	12
II	Progressive and Varifocal lenses: a) Properties and Material b) Bifocal and multifocal lenses. c) Selecting appropriate progressive lens. d) Wavefront design and new types of progressive lens – market availability	12
III	Ophthalmic lens materials and designs types: Spectacle Frames: 1. Raw materials for spectacle frames and manufacturing methods. 2. Spectacle frame measurements and markings. 3. New trends – latest developments in spectacle frames	12
IV	Aspheric, atoric, High Index lenses and special purpose lenses. b) Absorptive and protective lenses. i) Theory and practical aspects. ii) Toughening – methods, uses and application c) Sunglasses – Tinted, Photochromic, Polaroid lenses	12
TOTAL		**48**

Text Books:

1. Brooks, C. W., & Borish, I. M. (2006). *System for Ophthalmic Dispensing* (3rd ed.). Elsevier.
2. Jalie, M. (2017). *The Principles of Ophthalmic Lenses* (5th ed.). Association of British Dispensing Opticians.
3. Keirl, A., & Christie, C. (2007). *Clinical Optics and Refraction: A Guide for Optometrists, Contact Lens Opticians and Dispensing Opticians*. Butterworth-Heinemann.

Reference books

1. Jalie, M. (2008). *Ophthalmic Lenses and Dispensing* (3rd ed.). Elsevier.
2. Rosenbloom, A. A., & Morgan, M. W. (1993). *Vision and Aging: General and Clinical Perspectives* (2nd ed.). Butterworth-Heinemann.

Level: Semester II

Course: Core

Subject: Clinics Specialty

Subject Code: OPT244C211

Total marks/ credits: 100 /4

L-T-P-C: **0-0-8-4** **Total credits: 4**

Course Objective: The objective of this course is to enroll the students for clinical posting in various clinical establishment in and around Guwahati and also to enable each student the with practical exposure of the various clinical subjects taught and their applications in terms of patient communication and treatment.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Explain** various ocular conditions and their symptomology to patient & management.	**BT 2**
CO 2	**Apply** their skills to assess, evaluate, diagnose and manage different patients from different departments like contact lenses, glaucoma, low vision	**BT 3**
CO 3	**Construct** the framework for various ocular therapies.	**BT 3**
CO 4	**Analyse** the pathology of the traumatic and non-traumatic ocular conditions and their various treatment protocols both medical and surgical aspects	**BT 4**

Level: Semester -II

Course: DSE

Title of the Paper: Business & Clinical Aspects of Optometry
Subject Code: OPT244D204

Marks/ Credits: 100/4

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objectives:

The objective of the course is to help students manage their own business set up,retail sales; product development; marketing; systems, procedures and human resources.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** business skills with respect to clinical setup. course provides Understanding; Optimizing product	**BT 2**
CO 2	**Application** & evaluation of potential target markets & reviewing of existing product mix	**BT 3**
CO 3	**Relate** marketing and financial management in a clinical set up as well as in optical set up	**BT 3**
CO 4	**Analyse** service mix for target markets; Business setup; Retail sales; Product development; Marketing; resources.	**BT 4**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**
I.	Refresher of posterior segment ocular diseases, diagnosis and therapeutics	12
II.	Surgical treatment of posterior segment diseases	12
III.	Posterior segment Diagnostics 2.2 ERG 2.3 EOG 2.4 VEP 2.5 OCT 2	12
IV.	Fundus photography 2.7 Neuro optometric diseases and disorders	12
TOTAL		48

Text Books:

1. ICEE Modules
2. Business Aspects of Optometry: Association of Practice Management Educators 3 rd Edition Publisher : Butterworth-Heinemann; 3rd edition (19 February 2004)

Reference books

1. Association of Practice Management Educators of Practice Management Educators eBook : APME, Classe, John G., Thal, Lawrence S., Kamen, Roger D.
2. Practice Management in Optometry: A. Blueprint for Success Based on the Optometric Management, Neil Gailmard

Level: Semester -II

Course: DSE

Title of the Paper: ADVANCED GLAUCOMA
Subject Code: OPT244D205

Marks/ Credits: 100/4

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objectives:

The objective of the course is to help students manage their own business set up,retail sales; product development; marketing; systems, procedures and human resources.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** different evaluation procedure of glaucoma, interpretation of the.	**BT 2**
CO 2	**Relate** visual field defect with the defect with the concerned nerve	**BT 3**
CO 4	**Analyse** the fundus drawings performed with direct and indirect ophthalmoscope.	**BT 4**

COURSE OUTLINE:

Modules	Course Content	Periods
I.	Galucoma Definition, Types, Clinical Presentation, Evaluation Techniques, Management.	12
II.	Special Investigations ,Gonioscopy Ophthalmoscopic techniques for evaluation of the optic nerve head	12
III.	Optic disc drawings;Optic disc photography; Flicker analysis; Perimetry Stereophotogrammetry;	12
IV.	Image analyzers, Retinal nerve fiber layer evaluation	12
TOTAL		48

Text Books:

1. Weinreb, R. N., & Medeiros, F. A. (2022). *The Glaucoma Book: A Practical, Evidence-Based Approach to Patient Care* (2nd ed.). Springer.
2. Shields, M. B. (2008). *Textbook of Glaucoma* (6th ed.). Lippincott Williams & Wilkins.
3. European Glaucoma Society. (2020). *Terminology and Guidelines for Glaucoma* (5th ed.). EGS.

Reference books

1. Stamper, R. L., Lieberman, M. F., & Drake, M. V. (2009). *Becker-Shaffer's Diagnosis and Therapy of the Glaucomas* (8th ed.). Mosby Elsevier.
2. Shaarawy, T. M., Sherwood, M. B., Hitchings, R. A., & Crowston, J. G. (Eds.). (2015). *Glaucoma: Medical Diagnosis and Therapy* (2nd ed.). Saunders Elsevier.

SYLLABUS (1ST SEM)

SUBJECT NAME: SWAYAM COURSE

Subject Code:

Course Level: 100

SUBJECT CODE:

SCHEME OF EVALUATION: (T)

Total credits:

Level: Semester -III

Course: Core

Title of the Paper: LOW VISION CARE & REHABILITATION
Subject Code: OPT244C301

Marks/ Credits: 100/4

L-T-P-C: **6-0-0-6** **Total credits: 6**

Course Objectives: The objective of this course is to give both in-depth theoretical knowledge and clinical exposure in low vision care.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** diagnose and manage patients with vision impairment	**BT 2**
CO 2	**Relate** specialized diagnostics for patients with low vision with multiple disabilities	**BT 3**
CO 3	**Analyse** eccentric viewing and steady eye techniques & ability to rehabilitate patients with VI with vocational counselling an activities of daily living	**BT 4**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**
I.	Habilitation of Children and Youth with vision Impairment Rehabilitation of working –age Adults with Vision Impairment Rehabilitation of older Adults with Vision Impairment Functional consequences of vision Impairment	12
II.	Vision evaluation of Infants Educational assessment of visual function in Infants and Children Functional Evaluation of the Adult	12
III.	Functional orientation and Mobility Functional Assessment of Low Vision for Activities of Daily living Psychosocial assessment of adults with vision impairment	12

IV.	Assistive Devices and Technology for Low Vision Assistive Devices and Technology for Blind Vision and Reading - Normal Vs Low Vision Clinical Implications of color vision Deficiencies	12
TOTAL		48

Text Books:

1. Corn, A. L., & Erin, J. N. (Eds.). (2010). *Foundations of Low Vision: Clinical and Functional Perspectives* (2nd ed.). AFB Press.
2. Brilliant, R. L. (1999). *Essentials of Low Vision Practice*. Butterworth-Heinemann.
3. Whittaker, S. G., Scheiman, M. M., & Sokol-McKay, D. (2016). *Low Vision Rehabilitation: A Practical Guide for Occupational Therapists*. SLACK Incorporated.

Reference books

1. Lueck, A. H., & Dutton, G. N. (Eds.). (2015). *Vision and the Brain: Understanding Cerebral Visual Impairment in Children*. AFB Press.
2. Goodrich, G. L. (2007). *Optometric Management of Low Vision Patients*. Professional Press Books.

Level: Semester -III

Course: Core

Title of the Paper: RECENT ADVANCES IN OPTOMETRY
Subject Code: OPT244C302

Marks/ Credits: 100/4

L-T-P-C: **6-0-0-6** **Total credits: 6**

Course Objectives: The objective of this course is to provide a comprehensive understanding of the latest technological, clinical, and research developments in the field of optometry, fostering innovation and critical thinking in practice.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	Describe and explain recent technological advances in diagnostic and therapeutic instruments in optometry.	**BT 2**

CO 2	Apply evidence-based optometric practices in clinical decision-making.	**BT 3**
CO 3	Analyze current trends in myopia management, ocular surface disease, and retinal imaging	**BT 4**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**
I.	Advances in diagnostic technologies: OCT, wavefront aberrometry, corneal topography Advances in optometric instrumentation	12
II.	New trends in myopia control: orthokeratology, atropine therapy Emerging concepts in ocular surface management	12
III.	Innovations in retinal imaging: AI-assisted diagnostics Update on glaucoma detection and visual field analysis	12
IV.	Developments in contact lenses, refractive surgery, and low vision aids Integration of evidence-based practices in clinics	12
TOTAL		48

Textbooks

1. American Optometric Association. (2022). *Telehealth in Optometry: Guidelines and Best Practices*. AOA Guidelines Series.
2. Resnikoff, S., Lansingh, V. C., Washburn, L., & et al. (2021). *Global Magnitude of Visual Impairment Due to Uncorrected Refractive Error, 1990–2020*. *Bulletin of the World Health Organization*.
3. World Health Organization. (2019). *World Report on Vision*. WHO Press.

Reference books

1. Rein, D. B., Wittenborn, J. S., & et al. (2020). *Economic Burden of Vision Loss in the United States and Globally*. *JAMA Ophthalmology*.
2. Press, L. J. (2008). *Applied Concepts in Vision Therapy*. Optometric Extension Program Foundation.

Level: Semester -III

Course: Core

Title of the Paper: EVIDENCE-BASED PRACTICE
Subject Code: OPT244C303

Marks/ Credits: 100/4

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objectives: The objective of this course is to equip students with the ability to critically appraise and apply evidence-based approaches in clinical optometry practice for enhanced patient outcomes.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	Understand the principles and importance of evidence-based practice in optometry	**BT 2**
CO 2	Apply evidence-based methods in evaluating clinical procedures and practice	**BT 3**
CO 3	Critically analyze research literature to inform clinical decision-making	**BT 4**
CO 4	Develop evidence-based strategies for improving patient care in optometric practice	**BT 5**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**
I.	Introduction to Evidence-Based Practice (EBP) in Optometry	12
II.	Research Methodologies in Optometry Understanding Study Designs: RCTs, Cohort, Case-control, Systematic Reviews Critical Appraisal of Clinical Literature	12

III.	Application of EBP in Clinical Decision-Making Integrating Clinical Expertise with Best Available Evidence EBP in Diagnosis and Management of Common Eye Conditions	12
IV.	Barriers to Implementing EBP in Optometry Practice Promoting EBP Culture in Vision Care Developing Clinical Guidelines Based on Evidence	12
TOTAL		48

Textbooks

1. Straus, S. E., Glasziou, P., Richardson, W. S., & Haynes, R. B. (2018). *Evidence-Based Medicine: How to Practice and Teach EBM* (5th ed.). Elsevier.
2. Greenhalgh, T. (2019). *How to Read a Paper: The Basics of Evidence-Based Medicine and Healthcare* (6th ed.). Wiley-Blackwell.
3. Bowers, D., House, A., & Owens, D. (2011). *Understanding Clinical Papers* (2nd ed.). Wiley-Blackwell.

Reference books

1. Sackett, D. L., Rosenberg, W. M. C., Gray, J. A. M., Haynes, R. B., & Richardson, W. S. (2000). *Evidence-Based Medicine: How to Practice and Teach EBM* (2nd ed.). Churchill Livingstone.
2. Trisha, G., & Russell, J. (2022). *Evidence-Based Healthcare and Public Health: How to Make Decisions About Health Services and Public Health* (4th ed.). Oxford University Press

Level: Semester -III

Course: DSE I

Title of the Paper: EYE BANKING
Subject Code: OPT244C305

Marks/ Credits: 100/4

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objective: To understand the structure and function of eye bank with the importance of documentation, and its legal boundaries.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** the basic concept of eye banking. Its design, and function	**BT 2**
CO 2	**Apply** proficiency in basic techniques of eye procurement and preservation under supervision.	**BT 3**
CO 4	**Analyse** the importance of ethical and legal considerations in eye donation and transplantation, including the need for informed consent	**BT 4**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**
I.	Introduction to Eye Banking, History & milestones, Requirements in eye bank,	12
II.	Duties and responsibilities of eye bank personals, Indications and contra indications, Instruments	12
III.	Tissue retrieval, Handling of tissue, preservation techniques, Evaluation techniques, specular microscopy, Documentation	12
IV.	Legal aspects, keratoplasties, Advanced keratoplasties	12
TOTAL		48

Text Books:

1. Dean Vavra: Eye Banking
2. Smolin and Thoft,s : The Cornea Scintific foundation and clinical practice, fourth edition

Reference books

1. T. Bredehorn Mayr : Eye Banking, Karger

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Level: Semester -III

Course: DSE

Title of the Paper: CLINICAL PSYCOLOGY
Subject Code: OPT244C306

Marks/ Credits: 100/4

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objective: The objective of this course is to understand foundational theories and principles of psychology, including the biopsychosocial model, theories of human development, and psychopathology.

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Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** Course outcome: Students shall be humble and will take up the cases with patience. Understanding the psychology of patient will bring the optimum result.	**BT 2**
CO 2	**Apply** knowledge of ethical guidelines and professional boundaries in clinical practice, recognising the importance of confidentiality and informed consent.	**BT 3**
CO 4	**Analyse** common mental health disorders and their symptoms, risk factors, and prevalence in diverse populations.	**BT 4**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**
I.	Mental health criterion, Mental Health and Illness, concept of Positive mental health, Psychological wellbeing, attitude towards mental illness, epidemiological studies and socio- demographic correlates of mental illness in India. 2. Social class, Social Change, Cultural shock, Migration, Religion and gender related issues with Special reference to India.	12

II.	Psychological aspects of disability and rehabilitation in India context, the role of family and society in the education, training and rehabilitation of disabled, Behavioural Model, Evaluation of behavioural modal, Psychodynamic model, Evaluation of psychodynamic model, Cognitive model, Evaluation	12
III.	Case history and Interviewing, Psychopathology of personality and Behaviours disorder, Specific personality disorders, Habit and Impulse disorders, Mental and behaviour disorder, psycho somatic disorder.	12
IV.	Psychopathology of childhood and adolescence disorders, Anxiety disorders, Schizophrenia, Psychopathology of emotional, behavioural and developmental disorders of childhood and adolescence Mental retardation, Classification, Aetiology and management /rehabilitation	12
	TOTAL	48

Text Books: .

1. **Barlow, D. H., & Durand, V. M.** (2022). *Abnormal Psychology: An Integrative Approach* (9th ed.). Cengage Learning.
2. **Kring, A. M., Johnson, S. L., Davison, G. C., & Neale, J. M.** (2021). *Abnormal Psychology* (14th ed.). Wiley.
3. **Trull, T. J., & Prinstein, M. J.** (2022). *Clinical Psychology* (11th ed.). Cengage Learning.

Reference books

1. **Kazdin, A. E.** (2017). *Research Design in Clinical Psychology* (5th ed.). Pearson.
2. **Mash, E. J., & Barkley, R. A.** (Eds.). (2014). *Child Psychopathology* (3rd ed.). Guilford Press.

Level: Semester -III

Course: DSE III

Title of the Paper: VISION THERAPY
Subject Code: OPT244C307

Marks/ Credits: 100/4

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objectives The objective of this course is to help expand the student's knowledge base in all aspects of behavioral vision care. Advanced competency is expected in the following principles and procedures for each clinical condition.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** common visual problems, including accommodation, convergence, and binocular vision dysfunction, through comprehensive visual assessments and clinical observation. .	**BT 2**
CO 2	**Relate** evidence-based techniques and therapeutic exercises to improve visual skills such as eye tracking, focusing, and depth perception, tailored to individual patient needs.	**BT 3**
CO 4	**Analyse** healthcare professionals to develop personalised vision therapy treatment plans, incorporating assessment findings, patient goals, and therapeutic objectives.	**BT 4**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**

I.	Clinical Conditions Strabismus and Amblyopia Amblyopia Anisometropic / Isometropic Refractive Amblyopia Strabismic Amblyopia Hysterical Amblyopia Form Deprivation Amblyopia Differential diagnoses in childhood visual acuity loss Strabismus Esotropia- o Infantile o Accommodative o Acquired o Microtropia o Sensory o Convergence Excess o Divergence Insufficiency o Non-accommodative o Sensory Adaptations Exotropia o Divergence Excess o Convergence Insufficiency o Basic Exotropia o Congenital o Sensory o Vertical Deviations o Noncomitant Deviations (AV Syndrome; Duane's Retraction Syndrome; Brown's Syndrome; III, IV, VI nerve palsy, etc.) o Differential diagnoses in strabismus □ Special clinical considerations o Anomalous Correspondence o Eccentric Fixation o Suppression o Motor Ranges o Stereopsis o Horror fusional is/intractable diplopia Perception and Information Processing Neurological / Psychological : Ambient / focal systems, Visual perceptual midline ,Parvo cellular / Magno cellular function, Perceptual Style (central, peripheral) ,Impact of colored filters ,Attention Intersensory and Sensorimotor Integration Visual-auditory ,Visual-vestibular ,Visual-oral ,Visual-motor Visual-tactual, Performance indicators ,Laterality and directions □ Aniseikonia □ Myopia □ Astigmatism □ Hyperopia 1.3.2 Ocular Motor Function □ Eye movements and reading	12

II.	Visual requirements for academic success: Bilaterality , Gross and fine motor ability ,Form perception/visual analysis ,Spatial awareness, Visualization, Visual memory, Visual sequential memory, Form constancy ,Visual speed and visual span ,Visual sequencing ,Refractive conditions and visual skills, Refractive Conditions, Developmental influence on refraction & emmetropization Aniseikonia Myopia Astigmatism Hyperopia Ocular Motor Function Eye movements and reading Pursuit dysfunctions Nystagmus Saccadic Dysfunctions Accommodation Role in myopia development Role in computer-related asthenopia Fusion in Non-Strabismic Conditions Fixation disparity Motor fusion Sensory fusion	12
III.	Special clinical conditions Acquired brain injury (traumatic brain injury {TBI} and stroke) Developmental disabilities (Down Syndrome, Developmental delay, etc.) Visually induced balance disorders Motor disabilities (Cerebral Palsy, ataxia, etc.) Behavioral disorders Autism spectrum disorders ADD / ADHD Dyslexia and specific reading disabilities Learning Disabilities Computer Vision Syndrome	12
IV.	Vision Therapy Concepts to Consider Peripheral awareness: Focal / ambient roles Significant findings which are good or poor prognostic indicators of vision therapy and lens application	12

	Development, rehabilitation, prevention, enhancement Behavioral lens application Yoked prism rationale for treatment and application The relationship between the visual and vestibular systems SILO/SOLI Visual stress and its impact on the visual system Role of posture in vision development, comfort and performance Disruptive therapy: Discuss this type of therapy and how it can be used as a clinical therapeutic tool. Relationship of speech-auditory to vision How television, reading, video gaming might restrict movement, computer work, nutrition, etc., impact vision? Perceptual Style, e.g., spatial/temporal, central/peripheral	
TOTAL		48

Text Books:

1. **Scheiman, M., & Wick, B.** (2019). *Clinical Management of Binocular Vision: Heterophoric, Accommodative, and Eye Movement Disorders* (5th ed.). Wolters Kluwer.
2. **Press, L. J.** (2008). *Applied Concepts in Vision Therapy*. Optometric Extension Program Foundation.
3. **Grisham, J. D., & Simons, H. D.** (1998). *Binocular Anomalies: Diagnosis and Vision Therapy* (4th ed.). Butterworth-Heinemann.

Reference books

1. **Ciuffreda, K. J., Kapoor, N., & Rutner, D.** (2007). *Neuro-Optometric Rehabilitation* (1st ed.). Optometric Extension Program Foundation.
2. **Rouse, M. W.** (2004). *Optometric Management of Learning-Related Vision Problems*. Mosby.

Level: Semester -III

Course: DSE IV

Title of the Paper: OCULAR PROSTHESIS
Subject Code: OPT244C308

Marks/ Credits: 100/4

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objectives: The objective of this course is to enlighten on the fundamentals of prosthetic eyes, shed light on the invaluable work of ocularists, and explore the avenues available for individuals seeking prosthetic eye services.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** the basic anatomy and physiology of the eye, including structures relevant to ocular prosthesis design and fitting.	**BT 2**
CO 2	**Relate** principles of infection control and hygiene practices in the fabrication and handling of ocular prosthetic materials.	**BT 3**
CO 4	**Analyse** common indications for ocular prostheses and assist in patient assessment and fitting procedures.	**BT 4**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**
I.	Common causes of ocular defects requiring prosthetic intervention. Historical perspective and evolution of ocular prosthetics	12

II.	Types of materials used in ocular prosthetics (e.g., acrylic, silicone, polymers). Sculpting, moulding, and painting techniques for creating lifelike prosthetic eyes Customisation options for iris colour, size, shape, and scleral contouring Principles of prosthetic fitting and alignment within the ocular socket Techniques for achieving optimal aesthetic outcomes and natural eye movement Adjustment procedures to address comfort, stability, and cosmetic concern	12
III.	Common complications associated with ocular prostheses	12
IV.	Importance of patient education on prosthetic care, handling, and maintenance Addressing psychosocial aspects of ocular disfigurement and rehabilitation with prosthetic intervention Techniques for communicating with patients and families, managing expectations, and providing emotional support	12
TOTAL		48

Text Books:

1. **Guttal, S. S.** (2016). *Ocular Prosthesis: A Clinical Manual*. Jaypee Brothers Medical Publishers.
2. **Beumer, J., Marunick, M. T., & Esposito, S. J.** (2011). *Maxillofacial Rehabilitation: Prosthodontic and Surgical Considerations* (3rd ed.). Quintessence Publishing.
3. **Cowan, T. L.** (2003). *Clinical Ocular Prosthetics*. Springer.

Rererence books

4. **Artopoulou, I. I., et al.** (2006). *Digital Imaging in the Fabrication of Ocular Prostheses*. Journal of Prosthetic Dentistry, 95(4), 327–330.
5. **Welch, R. B.** (1971). *The Anophthalmic Socket: Clinical and Pathological Observation*. Thomas Publishers.

Level: Semester -III

Course: DSE V

Title of the Paper: ADVANCEMENTS IN OPTOMETRY
Subject Code: OPT244D309

Marks/ Credits: 100/4

L-T-P-C: **4-0-0-4** **Total credits: 4**

Course Objective: In this course latest articles published in Optometry and vision science journals will be discussed. This will enable the students to keep abreast of latest developments in the field of Optometry and vision science.

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	**Understand** recent technological advancements in optometry, including digital imaging, artificial intelligence, and teleoptometry, and their impact on clinical practice.	**BT 2**
CO 2	**Apply** evidence-based approaches to the management of ocular diseases and conditions, integrating findings from recent research and clinical trials into clinical decision-making.	**BT 3**
CO 4	**Analyse** emerging therapeutic modalities and interventions in optometry, such as myopia control strategies, orthokeratology, and neuro-optometric rehabilitation, and their clinical applications.	**BT 4**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**
I.	**Technological Advances in Optometry** • Optical Coherence Tomography (OCT) • Wavefront Aberrometry • Corneal Topography & Tomography • Fundus Autofluorescence • Portable diagnostic devices and Tele-optometry tools	12

II.	**Advancements in Disease Management** • Myopia Management: Orthokeratology, Atropine therapy • Dry Eye Management: New anti-inflammatory treatments, Meibomian gland imaging • Innovations in Glaucoma detection: AI-based VF interpretation, RNFL analysis • Retinal Imaging and Teleophthalmology	12
III.	**Clinical and Surgical Innovations** • New contact lens materials and designs (scleral, hybrid lenses) • Advances in refractive surgery: SMILE, wavefront-guided LASIK • Neuro-optometric rehabilitation • Pediatric optometry and amblyopia therapy innovations	12
IV.	**Research and Evidence-Based Practice** • Evidence-based optometry: clinical guidelines, protocols • AI and machine learning in optometric diagnostics • Public health optometry and screening innovations • Integrating electronic medical records and digital health in practice	12
	TOTAL	48

Textbooks

1. **Efron, N.** (2023). *Contact Lens Practice* (4th ed.). Elsevier.
2. **Benjamin, W. J.** (2006). *Borish's Clinical Refraction* (2nd ed.). Butterworth-Heinemann.
3. **Scheiman, M., & Wick, B.** (2019). *Clinical Management of Binocular Vision: Heterophoric, Accommodative, and Eye Movement Disorders* (5th ed.). Wolters Kluwer.

Reference books

4. **Ciuffreda, K. J., Ludlam, D. P., & Kapoor, N.** (2007). *Neuro-Optometric Rehabilitation*. Optometric Extension Program Foundation.
5. **Leigh, R. J., & Zee, D. S.** (2015). *The Neurology of Eye Movements* (5th ed.). Oxford University Press.

Level: Semester -IV

Title of the Paper: Clinic (General)
Subject Code: OPT244C401
Marks/ Credits: 100/4

L-T-P-C: **0-0-8-4** **Total credits: 4**

Course Objectives:
Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	Demonstrate competency in performing routine optometric examinations	**BT 3**
CO 2	Apply theoretical knowledge to clinical case management in general optometry practice	**BT 4**
CO 4	Interpret clinical data to formulate accurate diagnoses and management plans	**BT 5**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**
I.	Case history taking and comprehensive eye examination	12
II.	Refractive error identification and correction techniques	12
III.	Management of anterior and posterior segment disorders	12
IV.	Exposure to general optometry OPD and clinical documentation	12
TOTAL		48

Level: Semester -IV

Title of the Paper: Clinic (Speciality)
Subject Code: OPT244C402
Marks/ Credits: 100/4

L-T-P-C: **0-0-8-4** **Total credits: 4**

Course Objectives:

Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	Demonstrate clinical skills in specialized areas like contact lens, binocular vision, and low vision	**BT 3**
CO 2	Manage and co-manage complex cases in optometric sub-specialties	**BT 4**
CO 4	Critically reflect on specialty clinical experience to improve patient care	**BT 5**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**
I.	Contact lens clinic: Fitting, aftercare, complication management	12
II.	Binocular vision and pediatric assessment	12
III.	Low vision assessment and rehabilitation techniques	12
IV.	Exposure to specialty clinics: retina, glaucoma, neuro-optometry	12
	TOTAL	48

Level: Semester IV

Title of the Paper: Dissertation
Subject Code: OPT244C403
Marks/ Credits: 100/4

L-T-P-C: **0-0-32-4** **Total credits: 16**

Course Objectives:
Course Outcomes:

On successful completion of the course the students will be able to:		
SI No	**Course Outcome**	**Blooms Taxonomy Level**
CO 1	Develop a research question and formulate hypotheses	**BT 3**
CO 2	Conduct a literature review and design an appropriate methodology	**BT 4**
CO 4	Analyze data, interpret findings, and compile a comprehensive dissertation report	**BT 5**

COURSE OUTLINE:

Modules	**Course Content**	**Periods**
I.	Introduction to research process: Topic selection, objective setting	4
II.	Methodology design, Ethical clearance, Data collection	4
III.	Data analysis, statistical tools, interpretation	4
IV.	Writing the dissertation and final presentation	4
TOTAL		16