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: 2023 - 24

Preamble

The National Education Policy (NEP) 2020 conceives a new vision for India's higher education system. It recognizes that higher education plays an extremely important role in promoting equity, human as well as societal well-being and in developing India as envisioned in its Constitution. It is desired that higher education will significantly contribute towards sustainable livelihoods and economic development of the nation as India moves towards becoming a knowledge economy and society.

If we focus on the 21st century requirements, the higher education framework of the nation must aim to develop good, thoughtful, well-rounded, and creative individuals and must enable an individual to study one or more specialized areas of interest at a deep level, and also develop character, ethical and Constitutional values, intellectual curiosity, scientific temper, creativity, spirit of service, and twenty-first-century capabilities across a range of disciplines including sciences, social sciences, arts, humanities, languages, as well as professional, technical, and vocational subjects. A quality higher education should be capable enough to enable personal accomplishment and enlightenment, constructive public engagement, and productive contribution to the society. Overall, it should focus on preparing students for more meaningful and satisfying lives and work roles and enable economic independence.

Towards the attainment of holistic and multidisciplinary education, the flexible curricula of the University will include credit-based courses, projects in the areas of community engagement and service, environmental education, and value-based education. As part of holistic education, students will also be provided with opportunities for internships with local industries, businesses, artists, crafts persons, and so on, as well as research internships with faculty and researchers at the University, so that students may actively engage with the practical aspects of their learning and thereby improve their employability.

The undergraduate curriculums are diverse and have varied subjects to be covered to meet the needs of the programs. As per the recommendations from the PG, introduction of courses related to Indian Knowledge System (IKS) is being incorporated in the curriculum structure which encompasses all of the systematized disciplines of Knowledge which were developed to a high degree of sophistication in India from ancient times and all of the traditions and practises that the various communities of India—including the tribal communities—have evolved, refined and preserved over generations, like for example Vedic Mathematics, Vedangas, Indian Astronomy, Fine Arts, Metallurgy, etc.

At RGU, we are committed that at the societal level, higher education will enable each student to develop themselves to be an enlightened, socially conscious, knowledgeable, and skilled citizen who can find and implement robust solutions to its own problems. For the students at the University, Higher education is expected to form the basis for knowledge creation and innovation thereby contributing to a more vibrant, socially engaged, cooperative community leading towards a happier, cohesive, cultured, productive, innovative, progressive, and prosperous nation."

Introduction:

India is one of the fastest-growing economies globally, with knowledge creation and research playing a pivotal role in sustaining this momentum. As the nation aspires to establish itself as a leading knowledge society and one of the largest economies, there is an urgent need to expand research capabilities and outputs across disciplines. At Royal Global University, we align ourselves with this national vision by fostering a robust ecosystem of research and innovation, nurturing a vast talent pool that is critical for achieving these ambitious goals.

The National Education Policy (NEP) 2020 emphasizes the transformation of higher education to support India's transition to a knowledge-driven economy. Key initiatives such as multidisciplinary education with multiple entry and exit options, undergraduate research opportunities, and a learning outcomes-based curriculum are at the forefront of this transformation .The postgraduate (PG) programmes at Royal Global University are designed to advance students' expertise in their chosen fields and equip them for higher research pursuits .These programmes provide the advanced knowledge and specialized skills necessary for students to evolve from learners to innovators, contributing meaningfully to the nation's knowledge economy**.** In line with NEP 2020, Royal Global University offers restructured degree programmes to provide flexible and holistic education. The policy envisions undergraduate programmes with various certification options, including:

2. **Recommendations of NEP 2020 Pertinent to Postgraduate Education**

• A 2-year PG programme may be offered, with the second year exclusively dedicated to research for students who have completed a 3-year Bachelor's programme.

• For students who have completed a 4-year Bachelor's programme with Honours or Honours with Research, a 1-year PG programme could be introduced.

• An integrated 5-year Bachelor's/Master's programme may also be offered.

• Universities are encouraged to provide PG programmes in core areas such as Machine Learning, multidisciplinary fields like AI + X, and professional domains such as healthcare, agriculture, and law.

• A National Higher Education Qualifications Framework (NHEQF) will define higher education qualifications in terms of learning outcomes. The PG programme levels will correspond to Levels 6, 6.5, and 7 under the NHEQF.

• The PG framework must align with the National Credit Framework (NCrF) to facilitate the creditization of learning, including the assignment, accumulation, storage, transfer, and redemption of credits, subject to appropriate assessment.

3. **Key Features of the Postgraduate Curriculum Framework**

• Interdisciplinary Flexibility: Students can transition between different disciplines of study.

• Learner-Centric Options: Opportunities are provided for students to select courses aligned with their interests.

• Diverse Learning Modes: Flexibility to adopt alternative learning methods, including offline, Open and Distance Learning (ODL), online, and hybrid modes.

• Mobility and Credit Flexibility: In line with the UGC (Establishment and Operation of Academic Bank of Credits in Higher Education) Regulations, 2021, and the UGC Guidelines for Multiple Entry and Exit in Academic Programmes, students benefit from greater academic mobility. These frameworks support the implementation of the proposed "Curriculum and Credit Framework for Postgraduate Programmes".

4. **Credit Requirements and Eligibility Criteria for PG Programmes**

• A 1-year (2-semester) PG programme at level 6.5 on the NHEQF requires a Bachelor's degree with Honours or Honours with Research and a minimum of 160 credits.

• A 2-year (4-semester) PG programme at level 6.5 on the NHEQF requires a 3-year (6-semester) Bachelor's degree with a minimum of 120 credits.

• For professional PG programmes such as M.E., M.Tech., etc., a 2-year (4-semester) PG programme at level 7 of the NHEQF requires a 4-year Bachelor's degree (e.g.B.E., B.Tech.) with a minimum of 160 credits.

• A student is eligible for a PG programme in a discipline corresponding to either their major or minor(s) from their UG programme. Admission may be granted based on performance in the UG programme.

• Regardless of the major or minor disciplines pursued during UG, a student can seek admission to any discipline of a PG programme if they qualify through a national level entrance examination in the relevant discipline.

5. Generic Learning Outcomes at the Postgraduate Level Under the National Higher Education Qualifications Framework (NHEQF), higher education qualifications are classified across levels ranging from Level 4.5 to Level 8.

These levels represent sequential stages of learning, defined through a set of learning outcomes that outline what learners are expected to know, understand, and demonstrate upon successfully completing a programme of study at a specific level. Learning outcomes are articulated as measurable graduate attributes, which students must achieve and demonstrate upon completing their programme. For postgraduate studies, these outcomes ensure students are equipped with advanced knowledge, skills,and competencies essential for their academic and professional growth.

• NHEQF Level 4.5 corresponds to the learning outcomes expected in the first year (first two semesters) of an undergraduate programme.

• NHEQF Level 8 corresponds to the outcomes appropriate for a doctoral-level programme.

Postgraduate programmes fall between Level 6.5 and Level 7, as outlined in the NHEQF. The framework ensures that PG students acquire both depth in their subject knowledge and the ability to apply their learning to complex, real-world challenges. For a comprehensive understanding of the detailed learning outcomes for PG programmes, refer to the National Higher Education Qualifications Framework (NHEQF).

5.1 Graduate Attributes & Learning outcomes descriptors for a higher education qualification at level 6.5 on the NHEQF Qualifications that signify completion of the postgraduate degree are awarded to students who:

GA1: have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with the first cycle, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within research context.

GA2: can apply their knowledge and understanding, and problem-solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study.

GA3: have the ability to integrate knowledge and handle complexity, and formulate judgments with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgments.

GA4: can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.

GA5: have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous. The PG degree (e.g. M.A., M.Com., M.Sc., etc.) will be awarded to students who have demonstrated the achievement of the outcomes located at level 6.5 on the NHEQF.

Nature and Extent of Master's degree Programme in Optometry

A master's degree in optometry with internship (M. Optom) is a 2-year degree for the abovementioned courses. A Master's degree is divided into 4th semester.

CREDIT DISTRIBUTION

Semester	Credits
I	22

II	**24**
III	**27**
IV	**29**

Total Credits = 102

Aims of Master's Degree Programme in Optometry (M. Optom)

1. Qualification descriptors at the optometry master's level signify a profound and specialized comprehension of optometric subjects, enriched by domain knowledge, student insights, critical thinking, and effective communication proficiencies. This level of knowledge encompasses universal information that all graduates of the program can gather, as well as the qualities and skills they acquire during their postgraduate studies. Courses within the program thus cater to the diverse goals, learning needs, and personal circumstances of various optometry students. Programs evaluate not only academic prowess but also other essential skills and attributes, including clinical experiences in a range of eye care settings.

   In line with these qualification descriptors, the Department of Optometry at The Assam Royal Global University in Guwahati is committed to designing a curriculum that aligns with these expectations.
2. The attributes and outcomes associated with the Master's in Optometry program encompass a structured blend of learning opportunities. The program places a strong emphasis on classroom instruction, group and individual learning, library research, and clinical practicum. A pivotal aspect of this program is the development of communication skills, spanning from foundational to advanced levels of interaction, which are crucial for optometrists.
3. The critical perspective cultivated throughout the Master's in Optometry program empowers students to connect their academic degree with practical life skills, including professional competencies, while also fostering an appreciation for human values and ethical principles inherent in optometric practice.

Qualification descriptors for a Master's degree in Optometry

The qualification descriptors for the master's in optometry (M. Optom) will emphasize five core learning attributes: comprehension, utilization, communication, expansion, and application of subject knowledge within the context of optometric practice. Additionally, these attributes encompass an awareness of the diversity among optometry students based on various factors such as background, gender, and regional influences. This awareness encourages students to bridge these differences with a transparent and purposeful mindset. The primary qualification descriptors for Master's in Optometry include the following:

i. A comprehensive understanding of core and discipline-specific optometric subjects, conveyed through narratives of discovery and immersive experiential learning.

ii. Proficiency in accessing, generating, and analysing knowledge and data, connecting diverse concepts, and

applying them to manage vision and eye health, as well as broader public health concerns.

iii. Recognition of the importance of interdisciplinary skills in addressing both local and global challenges in optometric research and development.

iv. The ability to excel in diagnostic optometric practices, research endeavors, academic pursuits, and experimental work within hospital settings. This includes the capacity to identify and address issues within the optometric field.

v. Effective communication skills, encompassing the ability to deliver oral or written presentations, compose reports, and convey scientific ideas through technical documentation or creative forms of expression.

vi. The application of optometry-specific skills to cultivate a heightened sense of ethical and moral responsibility toward patients, promoting the understanding, respect, and transcendence of differences among various individuals and their visual health needs. The program aims to enhance students' competence to identify, analyse, evaluate, and devise sustainable solutions to key optometric challenges both locally and globally.

1.5 Program Learning Outcomes (PLOs) for a Master's in Optometry Program:

PLO1 - Mastery of Optometry Knowledge: Achieve an advanced level of understanding regarding the history and evolution of Optometry. Develop expertise in conducting comprehensive eye examinations, including the following:

a. Gain in-depth knowledge of ocular structures, their functions, and pathological alterations.
b. Proficiency in performing ophthalmic investigations.
c. Acquire expertise in diagnosing common eye diseases.
d. Comprehend treatment modalities with a focus on patient counseling.
e. Familiarity with referral guidelines for ocular and systemic conditions.

PLO2 - Complex Problem Solving: Enhance critical reasoning skills and demonstrate competence in handling complex patient cases. Identify and analyze various ocular conditions effectively.

PLO3 - Analytical and Critical Thinking: Develop the ability to critically assess and manage challenging cases presented by patients with ocular complaints. Analyze and interpret diagnoses related to visual defects and impairments associated with diverse ocular conditions and pathologies, including Refractive errors, Strabismus, Cataract, Diabetic retinopathy, Glaucoma, etc.

PLO4 - Creative Proficiency: Demonstrate the capability to design prostheses and create advanced Virtual

Reality (VR) therapies for vision-related treatments.

PLO5 - Effective Communication Skills: Cultivate strong communication skills, both in verbal and written forms, to effectively interact with patients, colleagues, and the broader healthcare community.

PLO6 - Research Aptitude: Develop advanced research skills, including the ability to identify research gaps, formulate research questions, and utilize relevant sources to provide substantive explanations.

PLO7 - Collaborative Competence: Participate actively in collaborative healthcare settings, contribute meaningfully to patient care, and offer constructive feedback while working in clinical or hospital environments.

PLO8 - Leadership Qualities: Exhibit leadership qualities by fostering a conducive workspace and effectively collaborating with peers. Lead group discussions and contribute to the advancement of optometric practice.

PLO9 - Digital and Technological Proficiency: Acquire advanced digital skills for conducting personal research, delivering presentations, posing relevant questions, and conducting online searches for answers.

PLO10 - Environmental Awareness and Advocacy: Demonstrate a commitment to professional ethics, maintain integrity in the workplace, and exhibit concern for the rising prevalence of eye diseases worldwide, often attributed to environmental factors. Advocate for environmental awareness and contribute to addressing this issue within the optometry profession.

Program-Specific Outcomes (PSOs) for a Master's in Optometry Program:

PSO1 - Advanced Clinical Proficiency: Demonstrate the ability to perform comprehensive eye examinations, including the correction of refractive errors, prescription of spectacles, fitting and dispensing of contact lenses, and evaluation of various ocular conditions. Competently manage pre- and post-operative workup for surgical cases.

PSO2 - Expertise in Low Vision Care: Possess advanced knowledge and skills in assessing and managing low vision patients. Provide comprehensive low vision care, including the utilization of low vision devices. Develop proficiency in the manufacturing of spectacles, contact lenses, and low vision aids.

PSO3 - Ocular Tissue Preservation and Public Education: Acquire in-depth knowledge of eye banks and the preservation of ocular tissues. Demonstrate the ability to counsel patients on visual and ocular hygiene, as well as recommend appropriate nutritional and environmental modifications to promote eye health and well-being.

PSO4 - Binocular Vision Expertise: Conduct complete binocular vision assessments with advanced competence. Effectively manage non-strabismic binocular vision anomalies and refer cases requiring surgical intervention. Possess knowledge of counseling patients on visual and ocular hygiene, as well as providing guidance on nutritional and environmental modifications to support optimal binocular vision.

Teaching and Learning Methods in a Master's Program:

Effective teaching and learning are essential components of a Master's program, facilitating a deeper understanding of the subject matter. Experienced educators should carefully design pedagogical strategies to ensure optimal learning outcomes. The following methods can be implemented for effective teaching at the master's level:

1. Integrated Teaching Approach: In a Master's program, faculty members often have their unique teaching styles, and students tend to become accustomed to these methods. However, this can lead to a tendency for selective learning. To address this, faculty members can organize interdisciplinary tutorial classes following the completion of each course module. These tutorials could be led by faculty members from different sections or experienced professors who have previously taught the subject. This approach encourages a comprehensive understanding of the subject matter and better prepare students for future employment opportunities.

2. Question-Driven Learning: Master's students may sometimes hesitate to ask questions during lectures, whether due to shyness or communication challenges. To foster a more interactive learning environment, students can be divided into small groups and tasked with delivering presentations on specific topics. This approach allows students to engage with their peers more comfortably, ask questions, and share their perspectives. It also promotes critical thinking and communication skills.

3. Model-Based Learning: Visual aids play a crucial role in understanding complex concepts at the master's level. Faculty members can incorporate video presentations related to the course content before starting a lecture. This visual approach enhances students' understanding, keeps them more engaged during the lecture, and leaves a lasting impression on their memory.

4. Tutorial and Group Discussion: Tutorial teaching is a distinctive feature of master's education. Through one-on-one discussions or small group sessions, students can engage in in-depth discussions with faculty members. These interactions help students develop verbal communication skills, receive immediate feedback, and cultivate critical thinking and problem-solving abilities. It encourages students to realize the practical significance and real-world implications of their knowledge.

5. Seminars and Workshops: Inviting accomplished professionals to conduct seminars and workshops for master's students provides valuable exposure to current industry trends and technological advancements. Such events help students stay updated and engage with the latest developments in their field. Active participation

in workshops fosters idea generation, problem-solving, and networking opportunities.

6. Projects and Assignments: Project-based learning and ongoing assignments are integral to master's programs. These tasks require students to apply theoretical concepts to real-world scenarios, leading to a deeper understanding of the subject matter. Projects also encourage critical thinking, research skills, and independent problem-solving, preparing students for complex challenges in their field of study.

Assessment Methods

<table>
<tr><th></th><th>Component of Evaluation</th><th>Marks</th><th>Frequency</th><th>Code</th><th>Weightage (%)</th></tr>
<tr><td>A</td><td>Continuous Evaluation</td><td></td><td></td><td></td><td></td></tr>
<tr><td>I</td><td>Analysis/Class test</td><td rowspan="5">Combination of any three from (i) to (v) with 5 marks each</td><td>1-3</td><td>C</td><td rowspan="6">25%</td></tr>
<tr><td>Ii</td><td>Home Assignment</td><td>1-3</td><td>H</td></tr>
<tr><td>Iii</td><td>Project</td><td>1</td><td>P</td></tr>
<tr><td>Iv</td><td>Seminar</td><td>1-2</td><td>S</td></tr>
<tr><td>V</td><td>Viva-Voice/Presentation</td><td>1-2</td><td>V</td></tr>
<tr><td>Vi</td><td>MSE</td><td>MSE shall be of 10 marks</td><td>1-3</td><td>Q/CT</td></tr>
<tr><td>vii</td><td>Attendance</td><td>Attendance shall be of 5 marks</td><td>100%</td><td>A</td><td>5%</td></tr>
<tr><td>B</td><td>Semester End Examination</td><td></td><td>1</td><td>SEE</td><td>70%</td></tr>
<tr><td></td><td>Project</td><td></td><td></td><td></td><td>100%</td></tr>
</table>

MASTER OF OPTOMETRY (MOPT)

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**
ABILITY ENHANCEMENT COMPULSORY COURSES							
5		COMMUNICATIVE ENGLISH-I	**1**	**0**	**0**	**1**	**1**
6		BEHAVIOURAL SCIENCE-I	**1**	**0**	**0**	**1**	**1**
DISCIPLINE SPECIFIC-DSE(ANY ONE)							

7	**OPT244D101**	EPIDEMIOLOGY & COMMUNITY EYECARE	**4**	**0**	**0**	**4**	**4**
8	**OPT244D102**	NEURO OPTOMETRY	**4**	**0**	**0**	**4**	**4**
9.		SWAYAM COURSE					
		Total				**22**	

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**
ABILITY ENHANCEMENT COMPULSORY COURSES							
5		COMMUNICATIVE ENGLISH-II	**1**	**0**	**0**	**1**	**1**
6		BEHAVIOURAL SCIENCE-II	**1**	**0**	**0**	**1**	**1**
7	**AEEC(ABILITY ENHANCEMENT ELCTIVE COURSE)**		**2**	**0**	**0**	**2**	**2**

DISCIPLINE SPECIFIC-DSE (ANY ONE)							
8	**OPT244D201**	BUSINESS AND CLINICAL ASPECTS IN OPTOMETRY	**4**	**0**	**0**	**4**	**4**
9	**OPT244D202**	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	**6**	**0**	**0**	**6**	**6**
2	**OPT244C302**	RECENT ADVANCES IN OPTOMETRY	**6**	**0**	**0**	**6**	**6**
3	**OPT244C303**	EVIDENCE-BASED PRACTICE	**4**	**0**	**0**	**4**	**4**
ABILITY ENHANCEMENT COMPULSORY COURSES							
4		COMMUNICATIVE ENGLISH-II	**1**	**0**	**0**	**1**	**1**
5	**AEEC**		**2**	**0**	**0**	**2**	**2**
DISCIPLINE SPECIFIC-DSE (ANY THREE)							
6	**OPT244D301**	EYE BANKING	**4**	**0**	**0**	**4**	**4**
7	**OPT244D302**	CLINICAL PSYCHOLOGY	**4**	**0**	**0**	**4**	**4**
8	**OPT244D303**	VISION THERAPY	**4**	**0**	**0**	**4**	**4**

9	**OPT244D304**	OCULAR PROSTHETICS	**4**	**0**	**0**	**4**	**4**
10	**OPT244D305**	ADVANCEMENT IN OPTOMETRY	**4**	**0**	**0**	**4**	**4**
		Total				**31**	

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	**16**	**0**	**0**	**16**	**16**
ABILITY ENHANCEMENT COMPULSORY COURSES							
5		COMMUNICATIVE ENGLISH-II	**1**	**0**	**0**	**1**	**1**
		Total				**25**	

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	12

	Guidelines, Amblyopia, Accommodation and Vergence anomalies, Myopia control	
TOTAL		48

Text Book:

- Clinical management of binocular vision Mitchell Scheiman and Bruce Wick
- Applied concepts in vision therapy: Leonard Press
- Pediatric optometry: Jerome K Rosner

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.Research Methodology, Methods & Techniques (3rd Edition) - C R Kothari
2. Research for Physiotherapist: Project Design & Analysis- (2nd edition)- Carolyn M. Hicks
3.Sundarrao, Introduction to biostatistics and Research Methodology, CBS, 1Ed, 2002.
4. B.L Agarwal, Basic statistics , New Age International Publication.
5. Research Methodology - a step by step guide for beginners (Third Edition) - Ranjit Kumar

Level: Semester I

Course: Core

Subject: Ocular Diseases and Diagnostics I

Subject Code: **OPT244C104**

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:

- Clinical Ophthalmology: Jack JKanski
- Diagnostics and imaging techniques in Ophthalmology: Amar Agarwal

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:

- Anthony J. Phillips: Contact Lenses, 5thedition, Butterworth-Heinemann, 2006
- Elisabeth A. W. Millis: Medical Contact Lens Practice, Butterworth-Heinemann, 2004
- E S. Bennett, V A Henry: Clinical manual of Contact Lenses, 3rd edition, Lippincott Williams and Wilkins, 2008

AECC/SUBJECT NAME: Communicative English and Behavioral Science-I

Course Level: 100

SUBJECT CODE:

SCHEME OF EVALUATION: (T)

Total credits: 2 **L-T-P-C – 2-0-0-2**

Level: Semester I

Course: DSE

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

Subject Code: OPT244D101

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**

Course: DSE

Title of the Paper: Neuro Optometry
Subject Code: OPT244D102

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. Clinical Ophthalmology: Jack J Kanski

2. Diagnostics and imaging techniques in Ophthalmology: Amar Agarwal

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. The lighthouse handbook on vision impairment and Vision rehabilitation: Barbara Silverstone, Mary Ann Lang, Bruce Rosenthal, Faye.

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 Book:

1. Clinical Ophthalmology: Jack J Kanski
2. Diagnostics and imaging techniques in Ophthalmology: Amar Agarwal

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. Jalie M. O.: Ophthalmic lens and Dispensing, 3 rd edition, Butterworth –Heinemann, 2008
2. Troy E. Fannin, Theodore Grosvenor: Clinical Optics, 2 nd edition, Butterworth – Heinemann, 1996
3. C. W. Brooks, I. M. Borish: System for Ophthalmic Dispensing, 3 rd edition, Butterworth - Heinemann, 2007
4. Michael P. Keating: Geometric, Physical & Visual Optics, 2 nd edition, Butterworth – Heinemann, 2002

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**

AECC/SUBJECT NAME: Communicative English and Behavioral Science-I

Course Level: 100

SUBJECT CODE:

SCHEME OF EVALUATION: (T)

Total credits: 2 **L-T-P-C – 2-0-0-2**

Level: Semester -II

Course: DSE

Title of the Paper: Business & Clinical Aspects of Optometry
Subject Code: OPT244D201

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

Level: Semester -II

Course: DSE

Title of the Paper: ADVANCE GLAUCOMA
Subject Code: OPT244D202

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. Becker Shaffer's: Diagnosis and Therapy of the Glaucoma
2. Schield's : Text book of glaucoma

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.The lighthouse handbook on vision impairment and Vision rehabilitation: Barbara Silverstone, Mary Ann Lang, Bruce Rosenthal, Faye.

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

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

AECC/SUBJECT NAME: Communicative English and Behavioral Science-I

Course Level: 200

SUBJECT CODE: SCHEME OF EVALUATION: (T)

Total credits: 2 **L-T-P-C – 2-0-0-2**

Level: Semester -III

Course: DSE I

Title of the Paper: EYE BANKING
Subject Code: OPT244D301

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
3. T. Bredehorn Mayr : Eye Banking, Karger
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Level: Semester -III

Course: DSE

Title of the Paper: CLINICAL PSYCOLOGY
Subject Code: OPT244D302

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. David R.Shaffer, Katherine KIPP: Developmental psychology childhood and Adolescence

2. Kevin Brewer: Clinical Psychology

3. Niraj Ahuja: A Short Textbook of Psychiatry

4. Margaret Harris and George Butterworth: Developmental Psychology: A Student's Handbook

Level: Semester -III

Course: DSE III

Title of the Paper: VISION THERAPY
Subject Code: OPT244D303

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. Clinical management of binocular vision Mitchell Scheiman and Bruce Wick
2. Applied concepts in vision therapy: Leonard Press

Level: Semester -III

Course: DSE IV

Title of the Paper: OCULAR PROSTHESIS
Subject Code: OPT244D304

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. ICEE Modules

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

3. Association of Practice Management Educators of Practice Management Educators eBook : APME, Classe, John G., Thal, Lawrence S., Kamen, Roger D.

4. Practice Management in Optometry: A. Blueprint for Success Based on the Optometric Management, Neil Gailmard

Level: Semester -III

Course: DSE V

Title of the Paper: ADVANCEMENTS IN OPTOMETRY
Subject Code: OPT244D305

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 Optomety** • 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

Level: Semester -IV

Title of the Paper: Clinic (General)
Subject Code: OPT244C411
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: OPT244C412
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: OPT244C413
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