



ROYAL GLOBAL UNIVERSITY
— GUWAHATI —

(ROYAL SCHOOL OF MEDICAL & ALLIED SCIENCES)

(RSMAS)

DEPARTMENT OF OPTOMETRY

Learning Outcomes-based Curriculum Framework (LOCF) for Postgraduate Programme

Masters of Optometry

W.E.F 2023 - 24

Preamble

Optometry is a healthcare discipline grounded in a well-established theoretical and scientific foundation, with extensive clinical applications aimed at preserving, restoring, rehabilitating, maintaining, and promoting optimal visual and ocular function. Optometrists diagnose and manage visual and ocular dysfunctions while enhancing visual and functional capabilities. These dysfunctions can arise from various systems, including the visual system itself or other related systems.

Practitioners in optometry contribute to society and the profession through their clinical work, teaching, administrative roles, and the pursuit and application of new knowledge in the field of optometry. They engage in research endeavours of notable excellence and scope to acquire and apply essential knowledge, skills, and behaviours relevant to optometry practice. Optometrists are autonomous, efficient, and compassionate professionals who collaborate across a range of healthcare settings, from paediatric to geriatric care, from primary eye care to specialized fields like low vision and contact lens management.

Emerging graduate and postgraduate students in optometry are expected to demonstrate a substantial knowledge base, possess clinical skills pertinent to optometric practice, maintain a high level of empathy for patients and their families, and fulfil community responsibilities. They should also exhibit awareness of legal regulations governing optometric practice and adhere to evidence-based clinical practices.

At the Royal School of Medical and Allied Sciences, we have adopted a Learning Outcome-based Curriculum Framework (LOCF) for our Master of Optometry (M. Optom) program starting from the upcoming academic session. This approach will make learning more student-centred, interactive, and outcome-oriented, with well-defined objectives and goals. The LOCF methodology is designed to offer a focused, outcome-driven syllabus at the program level, aiming to structure the teaching-learning process in a manner that equips students with 21st-century skills, including critical thinking, problem-solving, analytical reasoning, cognitive skills, and self-directed learning, among others. In essence, our program's primary focus is to prepare graduate-level students comprehensively for both academic and employability pursuits in the field of optometry.

The new curriculum will provide students with core courses that build a strong foundation in optometry. The choice of elective courses and skill enhancement opportunities will enable students to explore their interests in specialized areas of optometry and related fields. Each course's content has been meticulously designed to equip students with knowledge and skill sets that not only render them industry-ready but also nurture entrepreneurial and innovative thinking.

To achieve our program's objectives, we will implement the following measures:

- (i) Implement regulatory curriculum reforms based on a Learning Outcomes-based Curriculum Framework (LOCF) for optometry education.
- (ii) Enhance the quality of teaching and research in the field of optometry.
- (iii) Foster an enlightening learning environment through an ICT-based, hands-on approach to engage students in practical optometric applications.
- (iv) Actively involve students in discussions, problem-solving activities, and encourage creative thinking beyond conventional paradigms.
- (v) Motivate learners to comprehend various optometric concepts and apply them effectively in real-world situations.

Introduction:

Optometry is a contemporary healthcare discipline encompassing various essential elements, such as assessment, examination, interpretation, ocular diagnosis, treatment planning, and guidance provided to individuals. Its primary objectives are to prevent, correct, mitigate, and manage ocular dysfunctions, both acute and chronic, and to enhance visual health and overall well-being. Optometry encompasses a range of interventions, including vision-saving measures in critical situations, remediation of ocular disorders or impairments, promotion of visual fitness, facilitation of visual healing, and alleviation of pain and discomfort. It also addresses the treatment of ocular and related psychological conditions by influencing psychological and physiological responses through the application of physical agents, activities, and devices, including vision therapy, ocular exercises, optical devices, and diagnostic tools.

An optometrist is a qualified professional who has attained the comprehensive knowledge and skills necessary for clinical practice. They typically earn a bachelor's degree in "Optometry" from a recognized institution affiliated with a university, following a full-time program lasting no less than three years, coupled with a one-year clinical internship. This rigorous education equips optometrists to effectively assess, diagnose, treat, and prevent a wide range of ocular conditions and vision-related issues, ensuring the visual health and satisfaction of their patients.

1.2 Learning Outcomes-based Approach to Curricular Planning

The LOCF program in Master of Optometry (M. Optom) education offers students a unique opportunity to select courses from a diverse range of options, including Core, Discipline-Specific Electives, Generic Electives, and Skill Enhancement Courses. Evaluation in these courses follows a grading system, which is considered superior to the traditional marks-based system. This grading approach benefits students by enabling them to transfer credits between institutions within India and beyond national borders. It also provides uniformity in assessing candidates' performance for prospective employers. To maintain consistency in the evaluation process and the computation of the Cumulative Grade Point Average (CGPA) based on students' exam performance, we adhere to the guidelines set forth by the UGC (University Grants Commission).

An outcome-based approach shifts the focus from what is taught to what is learned, offering educators greater flexibility in developing teaching strategies within an interactive and participatory environment. The objective is to align teaching practices with societal needs, ensuring that the curriculum is responsive to the community's requirements. Assam Royal Global University has embraced this approach since its inception, primarily through the adoption of the Choice-Based Credit System (CBCS) curriculum in 2017. We further reinforce this approach by identifying additional relevant and shared learning outcomes that benefit the optometry student community. These outcomes not only cater to specific student needs but also broaden their perspectives and values. Furthermore, our curriculum emphasizes that the focus is not solely on domain knowledge or outcomes but also on the processes and approaches used in pedagogical interactions. This emphasis is crucial for ensuring the effectiveness of the optometry curriculum.

1.2.1 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 courses mentioned above. A Master’s degree is divided into 4th semester.

CREDIT DISTRIBUTION

Semester	Credits
I	22
II	24
III	27
IV	29

Total Credits = 102

1.2.2 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.

1.3 Graduate Attributes

Graduate attributes are the high-level qualities, skills and understandings that a student should gain as a result of the learning and experiences they engage with, while at university. This 'graduateness' is what sets them apart from those without a degree and is the added value which graduates can enjoy and share with employers and the wider community. They equip students and graduates for lifelong personal development, learning and to be successful in society. There are 12 such identified attributes which are as follows:

- **GA1-Disciplinary Knowledge:** Attain comprehensive knowledge and a coherent understanding of the chosen areas of optometry and related disciplines.
- **GA2-Complex Problem Solving:** Apply diverse problem-solving strategies to address a range of complex visual and ocular issues in both familiar and unfamiliar scenarios. Utilize learned concepts in real-life situations within the context of optometry.
- **GA3-Analytical and Critical Thinking:** Apply analytical thinking skills to assess policies, practices, and clinical approaches in optometry. Recognize underlying assumptions, logical inconsistencies, and gaps in arguments. Analyze and synthesize data from various sources to draw well-founded conclusions and support them with relevant evidence.
- **GA4-Creativity:** Demonstrate creativity in approaching diverse optical challenges, finding innovative solutions that extend beyond conventional methods. Employ imaginative and lateral thinking, as well as interpersonal skills and emotional intelligence, to address complex optometric problems.
- **GA5-Communication Skills:** Engage in attentive listening, critically analyze research papers, and effectively communicate intricate information to diverse audiences within the field of optometry. Express ideas clearly and concisely through written and oral communication, utilizing appropriate communication channels.
- **GA6-Research-Related Skills:** Develop keen observation and inquiry skills, capable of posing pertinent questions in optometric contexts. Acquire the ability to formulate and design research proposals, identify research problems, develop relevant research questions, and test hypotheses using both quantitative and qualitative data. Demonstrate understanding of research ethics and ethical conduct in personal research endeavors within the optometric domain.
- **GA7-Collaboration:** Collaborate effectively and respectfully within multidisciplinary teams, aligning efforts towards shared objectives within the realm of optometry.
- **GA8-Leadership Readiness/Qualities:** Cultivate the capacity to plan and organize team or organizational tasks in the optometry field. Formulate an inspiring vision and assemble a team capable of realizing this vision, showcasing leadership qualities within the optometric context.

- **GA9-Digital and Technological Skills:** Employ information and communication technology (ICT) proficiently in various optometry learning and work situations. Evaluate and utilize relevant information sources and apply appropriate software for data analysis within the scope of optometry.

- **GA10-Environmental Awareness and Action:** Mitigate the impact of environmental factors on ocular health within the optometry domain. Implement effective waste management techniques, contribute to the preservation of biological diversity, and promote sustainable practices for forest, wildlife, and overall environmental conservation in the context of optometry practice and education.

1.4 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.

1.6 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.

1.7 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.

1.8 Assessment Methods

	Component of Evaluation	Marks	Frequency	Code	Weightage (%)
A	Continuous Evaluation				
I	Analysis/Class test	Combination of any three from (i) to (v) with 5 marks each	1-3	C	25%
ii	Home Assignment		1-3	H	
iii	Project		1	P	
iv	Seminar		1-2	S	
V	Viva-Voice/Presentation		1-2	V	
Vi	MSE		MSE shall be of 10 marks	1-3	
vii	Attendance	Attendance shall be of 5 marks	100%	A	5%
B	Semester End Examination		1	SEE	70%
	Project				100%

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
		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	8
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
		Total				24	

Level -Semester I

Course: Core C1

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

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 (C2)

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	<p>RESEARCH METHODOLOGY:</p> <ol style="list-style-type: none"> 1. Introduction to research 2. Types of research 3. Defining a research question 4. Study design: types <ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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	<p>BIOSTATISTICS:</p> <ol style="list-style-type: none"> 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	<p>SCIENTIFIC WRITING:</p> <ol style="list-style-type: none"> 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 (C3)

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: C (4)

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, 5th edition, 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

Level: Semester I

Course: DSE (D1)

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

Level: Semester -II

Course: C 1

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: C2

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: C3

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 skills/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 C4

Subject: Clinical Education I

Subject Code: OPT244C204

Total marks/ credits: 100 /4

L-T-P-C: 4-0-0-4

Total credits: 4

Course Objective: The objective of this course is enrol 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: 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.	Galaucoma 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