CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT,

ANDHRA PRADESH

SCHOOL OF ALLIED AND HEALTHCARE SCIENCES

MASTER OF OPTOMETRY

2025-26

COURSE SYLLABUS

INTRODUCTION

Optometry means a health care profession that is autonomous and concerned especially with examining the eye for defects and faults of refraction, with prescribing correctional lenses or eye exercises, with diagnosing diseases of the eye, and with treating such diseases or referring them for treatment. Optometry as a profession has the primary public health responsibility for eliminating uncorrected refractive error (the leading cause of vision impairment globally). As primary eye care practitioners, optometrists have a vital role in detecting potentially serious eye diseases such as cataract, glaucoma and age-related maculopathy, as well as general health conditions such as hypertension and diabetes, which means optometrists can also help alleviate the burden of other causes of blindness through diagnosis, referral and in some cases co-management. Optometry can and should play a leading role in eye care provision at the primary level, and can also assist at secondary and tertiary levels where possible, working with ophthalmologists and other eye care providers towards the unified goal of combating blindness.

As per the *World Council of Optometry* (WCO'S CONCEPT OF OPTOMETRY) "Optometry is a healthcare profession that is autonomous, educated, and regulated (licensed/registered), and optometrists are the primary healthcare practitioners of the eye and visual system who provide comprehensive eye and vision care, which includes refraction and dispensing, detection/diagnosis and management of disease in the eye, and the rehabilitation of conditions of the visual system."

PROGRAMME OBJECTIVES

At the end of optometric training the graduate shall be able to;

1. Perform all the Optometric Techniques
2. Use discretely the essential laboratory services
3. Manage all types of clinical diagnostic ophthalmic methods
4. Demonstrate skills in handling the modern Optometric instruments in laboratory test.
5. Develop leadership qualities to function effectively as a leader in the laboratory environment
6. Render services to the laboratory set up and to communicate effectively with the Ophthalmologists and the hospital management.
7. Development of skill and competency in data processing, reporting and maintenance of records & ophthalmic investigations

Programmed: **Master of Optometry (M. Optom)**

Duration: Two years Programme
Eligibility: Bacher of Optomery
Examination: Examination rules will be as per guideline of CUTM Examination hand book.

Degree:

The degree of Master of Optometry course of the University shall be conferred on the candidates who have pursued the prescribed course of study for not less two academic years and have passed examinations as prescribed under the relevant scheme.

On successful completion of two years programme, with a minimum course credit of **110 credits**, the candidate will be awarded with **"Master of Optometry (M. Optom)** from Centurion University

Project Work

Each **Master of Optometry (M. Optom)** students will carry out project work under the supervision of a faculty member (as a primary guide). The progress of project work will be monitored regularly by the Guide.

Evaluation System

Theory + practice			
Internal Examination	**Component**	**% of marks**	**Method of Assessment**
	Internal Theory	30	Written examination
External Examination	External Theory	70	Written examination
Total		100	
Theory +Project			
Internal Examination	**Component**	**% of marks**	**Method of Assessment**
	Internal Theory	50	Written examination, record, viva, practical
External Examination	External Theory	50	Written examination, Viva, practical
Total		100	

Course Structure

SEMESTER I					
S.No	**Subject Code**	**Subject**	**Contact Hours per week (L+P+Pj)**	**Type**	**Credits**
1		APPLIED OCULAR BIOLOGY	3+0+0	Theory	3
2		ADVANCED OCULAR DIAGNOSTICS & MANAGEMENT	3+0+0	Theory	3
3		RESEARCH METHODOLOGY AND BIOSTATISTICS	2+0+0	Theory	2
4		INTELLECTUAL PROPERTY RIGHTS#	2+0+0	Theory	2
5		RESEARCH PROJECT-1#	3+0+0	Theory	3
6		DIGITAL PEDAGOGY AND LEARNING MANAGEMENT#	1+0.5+0	Theory + Practice	1.5
7		GENERAL CLINICS-1	0+4+0	Practice	4
8		SPECIALTY OPTOMETRY CLINICS-1	0+4+0	Practice	4
9		COMMUNITY OUTREACH-1	0+2+0	Practice	2
				Total credits	**24.5**

SEMESTER II					
S.no	**Subject Code**	**Subject**	**Contact Hours per week (L+P+Pj)**	**Type**	**Credits**
1		SPECIALIZED CLINICAL OPTOMETRY-CONTACT LENS-1	2+0+0	Theory	2
2		SPECIALIZED CLINICAL OPTOMETRY LOW VISION CARE	2+0+0	Theory	2
3		ELECTIVE 1#	2+0+0	Theory	2
4		RESEARCH PROJECT-2#	4+0+0	Theory	4
5		GENERAL CLINICS-2	0+6+0	Practice	6
6		SPECIALTY OPTOMETRY CLINICS-2	0+4+0	Practice	4
7		COMMUNITY OUTREACH-2	0+2+0	Practice	2
				Total credits	22

SKILL COURSE - 2 CREDITS

SEMESTER III

S.No	Subject Code	Subject	Contact Hours per week (L+P+Pj)	Type	Credits
1		SPECIALIZED CLINICAL OPTOMETRY- CONTACT LENS – 2	3+1+0	Theory + Practice	4
2		SPECIALIZED CLINICAL OPTOMETRY- BINOCULAR VISION	2+0+0	Theory	2
3		SPECIALIZED CLINICAL OPTOMETRY REHABILITATION	2+0+0	Theory	2
4		ELECTIVE 2#	2+0+0	Theory	2
5		SCIENTIFIC COMMUNICATION #	2+0+0	Theory	2
6		RESEARCH PROJECT-3	4+0+0	Theory	4
7		GENERAL CLINICS-3	0+6+0	Practice	6
8		SPECIALTY OPTOMETRY CLINICS-3	0+6+0	Practice	6
9		COMMUNITY OUTREACH-3	0+2+0	Practice	2
				Total credits	30

SEMESTER IV					
S.no	**Subject Code**	**Subject**	**Contact Hours per week (L+T+P)**	**Type**	**Credits**
1		SPECIALIZED CLINICAL OPTOMETRY - VISION THERAPY AND NEURO OPTOMETRY	2+0+0	Theory	2
2		ELECTIVE 3#	2+0+0	Theory	2
3		RESEARCH PROJECT-4	6+0+0	Theory	6
4		GENERAL CLINICS-4	0+8+0	Practice	8
5		SPECIALTY OPTOMETRY CLINICS-4	0+8+0	Practice	8
6		COMMUNITY OUTREACH- 4	0+2+0	Practice	2
				Total credits	**28**

SUMMER INTERNSHIP - 2 CREDITS

Value Added Courses:

Students can choose any suitable skill course offered by the University in semester II/III/IV

Note: Skill course & Value-added course, to be opted by the student along with the regular courses, as suggested in the syllabus.

Course Syllabus

SEMESTER I

Basket I: School Core Subjects

Subject Name	Code	Type of course	T+P+Pj	Credits
APPLIED OCULAR BIOLOGY		Theory	3+0+0	3

Course Description:

This course is designed to give the learners an overview about the basic science of the eye and clinical relevance. Applications of concepts in the basic biomedical sciences such as Anatomy, Physiology, Biochemistry, Microbiology, Genetics, Immunology, and Pathology will be discussed in the context of General physiology as well as ocular and clinical conditions.

Course Objectives:

- Explain ocular anatomy, and physiology of visual system relevant to eye and vision care
- Demonstrate an understanding of genetics, microbial infections of the eye and ocular pathology relevant to ocular science
- Gain knowledge about cell biology and ocular biochemistry, immunology, the basics of pharmacology and ocular pharmacology relevant to ocular science.

Module-1

Anatomy of Eye and Orbit: Osteology of orbit, Orbital contents Extra Ocular Muscles- Blood vessels of the orbit – Cranial Nerves associated with eye and orbit –Ocular Adnexa – Muscle of eye lids and adjacent face - Anatomy of the visual pathway. Physiology of Vision and the Visual System: Light detection and Dark adaptation – Visual acuity and contrast Sensitivity – Clinical Visual Electrophysiology – Color vision – Monocular versus Binocular vision – Ocular movement: Physiology – Psychophysical basis for clinical tests

Module -2

Genetics: Chromosome and Cell division –Molecular genetics– Clinical Genetics –Population genetics–Gene cell differentiations and Cell based therapy: Molecular genetics and ophthalmology Microbial Infections of the Eye: Introduction: Microbes in the environment - Host defense at the ocular surface: Physical barriers – Adaptive immunity to microbial infection – Ocular infections worldwide: viral, Bacterial, fungal, protozoan infections of the eye – Ocular

infections in developing countries. Pathology: Introduction – Cell and Tissue damage, Mechanism of cell death – Inflammation –Neoplasia – Hamartomas – Choristomas – Teratoma –Tumors

Module -3

Biochemistry: Biochemistry of the ocular surface, tear film, lacrimal gland sections, mucus layer, the conjunctiva, the lids , cornea and sclera, uveal tract- Inborn errors of metabolism and the eye, Metabolic diseases General and Ocular Pharmacology: Introduction - Pharmacokinetics– Pharmacodynamics –Mechanism of ocular drug absorptions –Routes of administration – Delivery methods - Drug Vehicles - Advanced ocular delivery systems – Ocular toxicity from systemic administrations of drugs Immunology: Innate and Acquired immunity – Initial response of the host to injury – Acute and Chronic Inflammation – Development of adaptive immunity and immunological memory – Organization of immune system – Antigen recognition – T cell activation – The eye and the immune system

Suggested Readings

1. J. V. Forrester, A. D. Dick, P. G. Mcmenamin, Fiona Roberts, Eric Pearlman, The Eye: Basic Science in Practice, 4/e., Elsevier. 2016

Subject Name	Code	Type of course	LTP	Credits
ADVANCED OCULAR DIAGNOSTICS AND MANAGEMENT		Theory	**3+0+0**	3

Course Description

- This course is designed to provide exposure to diagnostics to ocular conditions and management options for ocular diseases.

Course Objectives:

Interpret the findings for diagnostics of ocular diagnostics

Demonstrate an understanding on management options for ocular diseases
Gain knowledge about management options for ocular diseases

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO1	Understand the operating and understanding of ophthalmic instruments.	PO1,PO10,PO13,PSO1
CO2	Interpret all the ophthalmic instrumentation procedures and know about their appropriate clinical uses.	PO2,PO10,PSO1
CO3	Organize patients for pre ophthalmic Procedures	PO4,PO7,PSO3
CO4	Evaluate the strengths and limitations of different advanced diagnostics procedure	PO2,PO11,PO13,PSO2
CO5	Investigate different ophthalmic conditions and to advice patients for proper treatment.	PO5,PO7,PO8,PSO1

Module I:

Ocular photography: External, Anterior (Slit lamp and Gonio photography), Posterior (Fundus Photography, Fundus Autofluorescence, Fundus Fluorescein Angiography, Indocyanine Green

Angiography) Ultrasonography: (Ultrasound biomicroscopy, A-scan ultrasonography, B-scan ultrasonography, Pachymetry) Ocular Surface: (Meibography, Keratography, Corneal Biomechanics)

Module II

Anterior Segment Diagnostics: Confocal Microscopy, Specular microscopy, Corneal Topography, Corneal Tomography, Anterior Segment Optical Coherence Tomography, Pentacam, Aberrometry

Module III:

Posterior Segment Diagnostics: Posterior Segment Optical Coherence Tomography (Spectral Domain OCT, Swept Source OCT, OCT Angiography), Ocular Electrodiagnostics (ERG, MfERG, VEP, EOG), Dark Adaptometry

Module IV:

Clinical management of ocular conditions: Overview of drugs used in treatment of ocular disease, Overview of laser and surgical interventions for ocular disease, Vertical Integration of all treatment options of ocular disease with special emphasis on optometric management.

TEXT BOOKS

1. Nicholas R Galloway, Common Eye Diseases and their management 3rd Edition.
2. Amar Agarwal. (2011) Diagnostic and Imaging techniques in Ophthalmology.

Subject Name	**Code**	**Type of course**	**LTP**	**Credits**
RESEARCH METHODOLOGY AND BIOSTATISTICS		Theory	**2+0+0**	2

Course Description:

The objective of this module is to help the students understand the basic principles of research and methods applied to draw inferences from the research findings.

Course Objectives:

At the end of the semester, the student should be able to: 1. Apply the basic concepts in research 2. Choose appropriate study designs based on the research question 3. Use statistical tools to test for normality, pair-wise, and multiple comparisons, correlations and non-parametric tests 4. Apply and demonstrate Regression analysis 5. Utilise the concepts on qualitative research and analyse questionnaire development

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO1	Understand the ethical and philosophical issues associated with research writing	PO6,PO13,PSO2,PSO3
CO2	Implement the methods of data collection	PO2 ,PO10,PSO2
CO3	Demonstrate the ability to choose methods appropriate to research aims and objectives	PO3,PO5,PO13,PSO2
CO4	Critically evaluate research findings.	PO2,PO11,PO13,PSO2
CO5	Develop research hypothesis and sample design	PO2,PO3,PO5,PSO2

Module -1

Introduction to research methods, research strategies, Clinical study designs, sampling methods and sample size, tests for significance, association and causation. Ethics in research, Critical review of literature and consolidation, Writing a research question, Planning and implementing a research project, Data handling

Module –2

Sampling and sample size, Sampling distributions: t, chi-square, F distributions; Hypothesis testing: null and alternative hypotheses, decision criteria, critical values, type I and type II errors, Meaning of statistical significance; Power of a test; One sample hypothesis testing: Normally distributed data: z, t and chi-square tests; Binomial proportion testing. Tests for normality, comparison of 2 means, comparison of proportions - demonstration with statistical tools.

Module -3

Two sample hypothesis testing; Nonparametric methods: signed rank test, rank sum test; Kruskal-Wallis test; Analysis of variance. Comparison of multiple groups, ANOVA, multivariate modelling, Correlation - demonstration with statistical tools, Non-parametric tests, Mann-Whitney test, Kruskal Wallis, Friedman, Wilcoxon signed rank test - demonstration with statistical tools

Module -4

Confounding and Bias, Regression – simple linear, logistic regression, multiple regression – demonstration with statistical tools. Qualitative research and questionnaire development.

TEXT BOOK:

1. Research methodology: methods and techniques (C R Kothari), New age international publishers

2. W. W. Daniel, C. L. Cross. Biostatistics: A Foundation for Analysis in the Health Science, 10/e., Wiley, 2013

REFERENCE BOOKS:

3. B. Rosner. Fundamentals of Biostatistics, 7/e, Duxbury Resource Center, 2010.

4. R. F. Woolson, W. R. Clarke. Statistical Methods for the Analysis of Biomedical Data 2/e., John Wiley, New Jersey 2011.

Subject Name	**Code**	**Type of course**	**LTP**	**Credits**
INTELLECTUAL PROPERTY RIGHTS		Theory	**2+0+0**	2

Course Description:

The course is designed to introduce fundamental aspects of Intellectual Property Rights to learners who are going to play a major role in development and management of innovative projects. The course is designed for increasing awareness among a multidisciplinary audience.

Course Objectives:

- Analyse various aspects of copyrights and geographical indications
- Analyse various aspects of patents and Infer aspects of industrial designs
- Examine various aspects of trademark, and apply the knowledge about the enforcement of intellectual property rights

MODULE-1:

COPYRIGHT: What is copyright? What is covered by copyright? How long does copyright last? Why protect copyright? RELATED RIGHTS: What are related rights?, Distinction between related rights and copyright?, Rights covered by copyright? GEOGRAPHICAL INDICATIONS: What is a geographical indication? How is a geographical indication protected? Why protect geographical indications?

MODULE-2:

PATENTS: Patent and kind of inventions protected by a patent, Patent document, How to protect your inventions? Granting of patent, Rights of a patent, How extensive is patent protection?, Drafting and Filing of a patent. INDUSTRIAL DESIGNS: What is an industrial design? How can industrial designs be protected? What kind of protection is provided by industrial designs? How long does the protection last? Why protect industrial designs?

MODULE-3:

TRADEMARKS: What is a trademark? Rights of trademark?, What kind of signs can be used as trademarks?, How is a trademark protected?, How is a trademark registered?, How long is a registered trademark protected for? Trade secrets and know-how agreements. ENFORCEMENT OF INTELLECTUAL PROPERTY RIGHTS: Infringement of intellectual property rights, Enforcement Measures

MODULE-3:

Excretion: Body fluids– distribution, measurement & exchange, Kidney – structure of nephron– mechanism of urine formation, composition of the urine and abnormal constituents, urinary bladder & micturition. Endocrines: Hormone mechanism–negative feed backs– tropic action– permissive action–cellular action, hypothalamic regulation; hormones, actions & regulations of Thyroid, Adrenal cortex, Adrenal medulla, Parathyroid, Islets of pancreas, Miscellaneous hormones, their actions and regulations, Common clinical disorders,

TEXT BOOK AND REFERENCE BOOKS:

1. T. M. Murray, M. J. Mehlman. Encyclopedia of Ethical, Legal and Policy Issues in Biotechnology, Vol 2, John Wiley & Sons, 2010.
2. P. N. Cheremisinoff, R. P. Ouellette, R. M. Bartholomew, Biotechnology Applications and Research, Technomic Publishing Co., Inc. 1985.
3. D. Balasubramaniam, C. F. A. Bryce, K. Dharmalingam, J. Green, K. Jayaraman, Concepts in Biotechnology, 3/e University Press. 2004.

4. B. David, T. R. Jewell, R. G. Buiser, Biotechnology: Demystifying the Concepts1/e., Wesley Longman, USA, 2000.
5. Parulekar, S. D‟Souza, Indian Patents Law – Legal & Business Implications, Macmillan India ltd. 2006.
6. L. Wadehra. Law Relating to Patents, Trademarks, Copyright, Designs & Geographical Indications, Universal law Publishing Pvt. Ltd., 2000.
7. P. Narayanan, Law of Copyright and Industrial Designs, 4/e., Eastern law House, Delhi. 2010.

Subject Name	Code	Type of course	LTP	Credits
RESEARCH PROJECT - I		Theory	**3+0+0**	3

Course Description:

This course aims to enable the learner to appreciate the theoretical concepts learnt on the basics of research and apply it to initiate a research and propose an action plan. It would also prepare the learner to seek permissions from the relevant research bodies.

During the course the learner is expected to decide on a research topic after discussion with the respective guides, perform a thorough literature review, attend periodic journal clubs, interact with peers, faculty and guide, prepare a review of literate through presentation, formulate the methodology after discussion with the guide and plan and present for approval from the Institutional Review Board and ethics Committee.

Course Objectives:

1. Critically review and summarize literature
2. Propose a work plan
3. Arrange for obtaining approvals from the IRB and Ethics committee

Subject Name	Code	Type of course	LTP	Credits
DIGITAL PEDAGOGY AND LEARNING MANAGEMENT		Theory+Practice	**1+0.5+0**	1.5

Course Description:

This course aims to train the learner to understand the means of ICT integration into teaching and learning and demonstrate the different forms of digital information in the appropriate context.

Course Objectives:

1. Demonstrate and understand the various learning techniques
2. Compare various teaching methods, Review teaching methods and feedback techniques.
3. Appreciate the potentials of instructional multimedia

Module 1

Curriculum: Types of curricula- subject centered, learner centered curriculum, problem-based curriculum, competency/ outcome based curriculum and its importance Learning and changing behaviour: Learning: nature, characteristics of learning -Theories of learning: classical and operant conditioning. System‟s Approach, Principles of adult learning, Learning process Learning taxonomy- Bloom‟s taxonomy for cognitive domain, Krathwohl‟s affective domain taxonomy, Dave‟s Taxonomy for skill domain Learning objectives: Program objectives, course and unit objectives, framework the learning objectives, SMART objectives, horizontal and vertical integration of objectives.

Module 2

Types of learners: Visual, auditory, Readers and kinaesthetic learners. Designing of teaching learning activities- Use the system‟s approach for instructional design, Learner centric system, developing a lesson plan and material for using active learning methods for a course. Teaching learning methods such as: a. Didactic lectures, b. Small group teaching methods, c. Large group teaching methods, d. Case based and problem based learning, e. Simulations, f. Team based learning, g. Flipped classroom, h. Use of technology/ multimedia in teaching, i. Bed side / chair side teaching, clinical rotations, j. Reflective practice, k. Inter-professional education, l. Skill development, m. Project based learning, n. Self-directed learning (SDL)

Module 3

Assessment in higher education: Principles of assessment, planning for assessment, summative and formative assessments, performance indicators, various assessment tools such as: a. Long answer questions, b. Short answer questions, c. Multiple choice questions, d. Objective Structured Clinical Examination (OSCE), e. Objective Structured practical Examination (OSPE), f. Direct Observation of Procedural Skills (DOPS), g. Mini-Clinical Evaluation Exercise (Mini-CEX), h. Long Case Examination, i. Portfolios, j. Assignments- written/ oral, k. Self-assessment and peer assessment. Assessment reports and feedback: types of feedbacks, importance, reflective practice Evidence based teaching. ICT: Definition, Meaning, Scope, Trends and significance in the context of Education, ICT for Effective Teaching and Learning, ICT in classroom, ICT for Professional Development. Role of AIR in Education, Gyanvani, Countrywide Classroom, EDUSAT: Implications, ETV, Network. Evaluation of multimedia learning materials.

PRACTICALS:

1. Frame the learning objectives course/program

2. Design an instructional module for given learning objective

3. Deliver teaching session using active learning methods

4. Mentor the undergraduates to develop their knowledge and clinical skills

5. Design a feedback questionnaire, collect and analyse the feedback for teaching conducted in classroom/clinics

TEXT BOOK:

1. J. A. Dent, R. M. Harden, A Practical Guide for Medical Teachers, 3/e., Churchill Livingstone, 2009.

2. T. M. Srinivasan, Use of Computers and Multimedia in Education. Horton, 2002.

3. M. D. Williams, Integrating Technology into Teaching and Learning: Concepts and Applications, Prentice Hall, 2000.

4. S. K. Mangal, Advanced educational psychology PHI Learning private Ltd., 2006

Subject Name	**Code**	**Type of course**	**LTP**	**Credits**
GENERAL CLINICS I	CUTM1896	Practice	**0+4+0**	4

Course Objective:

This course aims to expose the learner to different specialty outpatient departments and general clinics to provide comprehensive optometric care.

Learning outcome

1. Appreciate the diversities pertaining to the ocular problems among patients presenting to the hospital

2. Handle the patients with their applied knowledge

CLINICAL POSTINGS:

1. General OPD/ Emergency
2. Glaucoma OPD
3. Neuro OPD
4. Pediatric OPD
5. Uvea OPD

6. Vitreoretina OPD
7. Cornea OPD
8. Community OPD

Each learner is expected to maintain clinic logbook, submit one case report per specialty as mentioned above and compulsorily attend all the weekly and special seminars.

Subject Name	Code	Type of course	L+P+Pj	Credits
SPECIALTY OPTOMETRY CLINICS - I		Practice	0+4+0	4

Course Objective:

This course aims is to expose the learner to different optometry specialty clinics and diagnostic specialties to equip the learner correlate, assimilate the findings related to their research area of interest.

Learning outcome

1. Gain exposure to different optometric specialty clinics and diagnostic specialties and able to interpret the test results

2. Utilize and translate the knowledge from these specialty clinics to their research avenues

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO1	Hands-on experience of special diagnostic clinics and also for carry forwarding the dissertation project under the guidance of senior	PO1,PO2,PO5,PO12,PSO1
CO2	Analyze Optometrist/Ophthalmologist and taking part in community outreach camps Clinical postings in Community Diagnostic.	PO1,PO4,PO8,PO11,PSO1
CO3	To be able to execute the basic skills on eye care	PO1,PO3,PO5,PO10,PSO1
CO4	Evaluate patients in Centre/hospitals/clinical set-up (for a maximum period of 2 months in the entire 4th semester)	PO1,PO5,PO6,PO10
CO5	Generate handling special instruments: OCT, A-scan, B-scan	PO1,PO2,PO5,PO10,PSO1

CLINICAL POSTINGS:

1. Binocular Vision / Vision therapy clinic
2. Low Vision Clinic
3. Contact lens Clinic
4. Refraction / Myopia control clinic
5. Occupational Optometry Clinic

DIAGNOSTIC POSTINGS:

1. Glaucoma Diagnostics (UBM, ASOCT, Visual Fields, OCT)
2. Retina Diagnostics (OCT, FFA, B Scan, Electro diagnostics)
3. Cornea Diagnostics (ASOCT, Pentacam, Topography, Abberometer)

Each learner is expected to maintain clinic logbook, submit one case report per specialty as mentioned above and compulsorily attend all the weekly and special seminars.

Subject Name	Code	Type of course	T + P + Pj	Credits
COMMUNITY OUTREACH SERVICES-I		**Practice**	**0+2+0**	**2**

Course Objective:

This course aims to expose the learners to the outreach activities whereby the learner would appreciate the needs of the society, be responsive to the needs and make the learner socially accountable. Learners will offer services in the community outreach initiatives of the academic/ clinical institution for the specific hours in the semester. They will maintain a logbook of the services rendered and submit a case report of cases seen during the community activities in a specified format. The evaluation will be based on the number of hours of outreach services, logbook maintenance and case reports.

COMMUNITY OUTREACH POSTINGS:

1. School Eye Screening
2. Screening for Adults (Comprehensive adults eye screening camps, Cataract screening camps, Camps for elderly, Camps for differently abled, etc.)

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO1	Demonstrate understanding of community eye health challenges and the importance of equitable access to optometric services through active participation in outreach programs.	PO1,PO2,PO5,PO12,PSO1
CO2	Apply clinical knowledge and skills effectively in real world community settings to provide basic eye care and referrals as needed.	PO1,PO4,PO8,PO11,PSO1
CO3	Exhibit a sense of social responsibility and ethical conduct by contributing meaningfully to institutional community outreach initiatives.	PO1,PO3,PO5,PO10,PSO1

CO4	Maintain accurate and reflective documentation through a structured logbook detailing the services rendered, patient cases, and learning experiences.	PO1,PO5,PO6,PO10
CO5	Prepare and present comprehensive case reports using standardized formats, showcasing clinical reasoning, communication skills, and patient management approaches.	PO1,PO2,PO5,PO10,PSO1

SEMESTER II

Subject Name	**Code**	**Type of course**	**T P Pj**	**Credits**
SPECIALIZED CLINICAL OPTOMETRY – CONTACT LENS 1		Theory	**2+0+0**	2

Course Description:

Upon completion of the course, the student should be able to understand the fitting for soft and RGP contact lenses along with the management of ocular complications.

Course Objective:

1. Ability to understand corneal physiology and oxygen needs 2. Ability to diagnose and manage complications due to contact lenses 3. Ability to fit specialized contact lenses like protective and therapeutic lenses

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO1	Understand the skills in fitting contact lens	PO1,PO10,PSO1
CO2	Identify and manage the adverse effects of contact lens	PO5,PO11,PSO1
CO3	Apply advanced techniques for selecting and fitting specialized contact lenses to address complex refractive errors	PO3,PO10,PSO1
CO4	Evaluate the contact lens design for various kinds of patients	PO2,PO13,PSO1
CO5	Create awareness about advantages of contact lenses over spectacles.	PO7,PO8,PSO3

MODULE-I

Anatomy and Physiology of the Cornea and related Structures Tears and contact lenses

MODULE-II

Optics and Lens Design Contact Lens Materials Clinical Instrumentation in contact lens practice

MODULE-III

Soft contact lens fitting Toric Contact lens fitting

MODULE-IV

Rigid Gas Permeable corneal lens fitting Microbiology, Lens Care and Maintenance

MODULE-V

Contact lens standards Lens checking : Soft and Rigid

MODULE-VI

Contact lens complications

MODULE-VII

Special types of Contact lenses – diagnosis, surgery, protective, therapeutic, sports, partially sighted

TEXT BOOK/REFERENCE BOOKS:

1. IACLE Modules
2. Anthony J. Phillips : Contact Lenses, 5thedition, Butterworth-Heinemann, 2006

Subject Name	**Code**	**Type of course**	**LTP**	**Credits**
SPECIALIZED CLINICAL OPTOMETRY – LOW VISION CARE		Theory	**2+0+0**	2

COURSE DESCRIPTION:

This course gives both in-depth theoretical knowledge in Low vision care. Upon completion of the course, the student should have thorough understanding of the causes of the low vision, its functional and psychosocial consequences, and rehabilitation measures through didactic lectures.

Course Objectives:

1. To understand the cause and needs of low vision patient
2. To suggest and guide patients with appropriate low vision devices (Optical/Non optical)
3. To understand basic rehabilitation and refer in case of further need

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO1	Interpret diagnose and manage patients with vision impairment	PO1,PO5,PO6,PO8,PO10,PSO1
CO2	Identify specialized diagnostics for patients with low vision with multiple disabilities	PO1,PO2,PO5,PO11,PSO1,PSO 2
CO3	Support the patient by training eccentric viewing and steady eye techniques	PO4,PO5,PO6,PO7,PO8
CO4	Demonstrate the rehabilitation procedure patients with VI with vocational counselling and activities of daily living.	PO4,PO6,PO7,PO8,PSO1
CO5	Test rudimerary vision	PO1,PO2,PO5,PO10

Module 1

Visual Disorders – Medical Perspective 1. The Epidemiology of Vision Impairment 2. Vision Impairment in the pediatric population 3. Ocular Diseases : Age – Related Cataract, Glaucoma, ARMD, Diabetic retinopathy, Corneal Disorders, Ocular Trauma, Sensory Neuro-ophthalmology and Vision Impairment, Refractive Disorders

Module 2

Visual Disorders – The Functional Perspective 1. Low Vision and Psychophysics 2. Visual Functioning in Pediatric Populations with Low Vision 3. Perceptual correlates of Optical Disorders 4. Functional aspects of Neural Visual Disorders of the eye and Brain 5. Visual Disorders and Performance of specific Tasks requiring vision

Module 3

Optical and Non-Optical device Field expanding systems and Assistive technology, Hand held minus lenses/reverse telescopes - optical principles, Reflecting mirrors, Use of Fresnel prisms, Peli lens model, Eccentric viewing training and Head Scanning Training, Computer software for visually impaired, Mobile software for visually impaired, Machines modified for helping visually impaired, perform activities of daily living without help, Large print items, auditory cues, Contrast Enhancement and Environmental modification

Module 4

Visual Disorders – The Psychosocial Perspective 1. Developmental perspectives – Youth 2. Vision Impairment and Cognition 3. Spatial orientation and Mobility of people with vision impairments 4. Social skills Issues in vision impairment 5. Communication and language : Issues and concerns 6. Developmental perspectives on Aging and vision loss 7. Vision and cognitive Functioning in old age

Module 5

Interactions of Vision Impairment with other Disabilities and sensory Impairments. 1. Children with Multiple Impairments 2. Dual Vision and Hearing Impairment 3. Diabetes Mellitus and Vision Impairment 4. Vision Problems associated with Multiple Sclerosis 5. Vision Impairment related to Acquired Brain Injury 6. Vision and Dementia 7. Low Vision and HIV infection

Module 6

The Environment and Vision Impairment: Towards Universal Design 1. Indian Disabilities act 2. Children‟s Environments 3. Environments of Older people 4. Outdoor environments 5. Lighting to enhance visual capabilities 6. Signage and way finding 7. Accessible Environments through Technology Vision Enhancement Techniques: Optical and non-optical Vision Enhancement techniques

TEXT BOOK:

1. B. Silverstone, Lighthouse Handbook on Vision Impairment and Vision Rehabilitation – Volume I and II. Oxford University press, 2000..

REFERENCE BOOKS:

1. Christine Dickinson: Low Vision: Principles and Practice Low vision care, 4th edition, Butterworth-Heinemann, 1998
2. Sarika G, Sailaja MVS, E Vaithilingam: Practice of Low vision –A guide book, Medical Research Foundation, 2015.
3. Richard L. Brilliant: Essentials of Low Vision Practice, Butterworth-Heinemann, 1999
4. Helen Farral: optometric Management of Visual Handicap, Blackwell Scientific publications, 1991
5. A J Jackson, J S Wolffsohn: Low Vision Manual, Butterworth Heinnemann, 2007

Subject Name	Code	Type of course	LTP	Credits
ELECTIVE 1		Theory	**2+0+0**	2

COURSE DESCRIPTION:

Students should choose any one of the following elective courses or a course relevant to their area of interest.

1. Recent theories in development and management of refractive errors.
2. Community Optometry
3. Geriatric eye care
4. Innovation and Technology
5. Eye care for Special population
6. Courses relevant to optometry as decided by the respective institute.

Course plan:

Faculty/ Institute can decide the course plan keeping in mind the need for meeting the required credit hours in 15 weeks.

Subject Name	Code	Type of course	T + P +Pj	Credits
RESEARCH PROJECT - II		Theory	4+0+0	4

Course Description:

This course aims to enable the learner to appreciate the approaches to data collection and complete data collection based on the approved methodology.

During the course the learner will utilize various concepts pertaining to data collection, decide on sample size and formulate a plan for completing collection of data. Learners would also apply the statistical tools to analyse the data and submit a report.

Course Objectives:

Upon completion of this course, the learners will be able to complete data collection, analyse critically and submit a report.

Subject Name	Code	Type of course	T + P +Pj	Credits
RESEARCH PROJECT - II	4	Theory	4+0+0	

Course Description:

This course aims to enable the learner to appreciate the approaches to data collection and complete data collection based on the approved methodology.

During the course the learner will utilize various concepts pertaining to data collection, decide on sample size and formulate a plan for completing collection of data. Learners would also apply the statistical tools to analyse the data and submit a report.

Course Objectives:

Upon completion of this course, the learners will be able to complete data collection, analyse critically and submit a report.

Course Objective:

This course aims to expose the learner to different specialty out patient departments and general clinics to provide comprehensive optometric care.

Learning Outcomes:

1. Upon completion of this course, the learners will be able to:

2. Appreciate the diversities pertaining to the ocular problems among patients presenting to the hospital

3. Handle the patients with their applied knowledge

CLINICAL POSTINGS:

1. General OPD/ Emergency
2. Glaucoma OPD
3. Neuro OPD
4. Pediatric OPD
5. Uvea OPD
6. Vitreoretina OPD
7. Cornea OPD
8. Community OPD

Each learner is expected to maintain clinic logbook, submit one case report per specialty
as mentioned above and compulsorily attend all the weekly and special seminars.

Subject NameCode	Type of course	T+P+ Pj	Credits
SPECIALTY OPTOMETRY CLINICS - II	**Practice**	**0+4+0**	**4**

Course Objective:

This course aims is to expose the learner to different optometry specialty clinics and diagnostic specialties to equip the learner correlate, assimilate the findings related to their research area of interest.

Learning Outcomes:

1. Gain exposure to different optometric specialty clinics and diagnostic specialties and able to interpret the test results

2. Utilize and translate the knowledge from these specialty clinics to their research avenues.

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO1	Hands-on experience of special diagnostic clinics and also for carry forwarding the dissertation project under the guidance of senior	PO1,PO2,PO5,PO12,PSO1
CO2	Analyze Optometrist/Ophthalmologist and taking part in community outreach camps Clinical postings in Community Diagnostic.	PO1,PO4,PO8,PO11,PSO1
CO3	To be able to execute the basic skills on eye care	PO1,PO3,PO5,PO10,PSO1
CO4	Evaluate patients in Centre/hospitals/clinical set-up (for a maximum period of 2 months in the entire 4th semester)	PO1,PO5,PO6,PO10
CO5	Generate handling special instruments: OCT, A-scan, B-scan	PO1,PO2,PO5,PO10,PSO1

CLINICAL POSTINGS:

1. Binocular Vision / Vision therapy clinic

2. Low Vision Clinic

3. Contact lens Clinic

4. Refraction / Myopia control clinic

5. Occupational Optometry Clinic

DIAGNOSTIC POSTINGS:

1. Glaucoma Diagnostics (UBM, ASOCT, Visual Fields, OCT)

2. Retina Diagnostics (OCT, FFA, B Scan, Electro diagnostics)

3. Cornea Diagnostics (ASOCT, Pentacam, Topography, Abberometer)

Each learner is expected to maintain clinic logbook, submit one case report per specialty

as mentioned above and compulsorily attend all the weekly and special seminars.

Subject Name	Code	Type of course	T +P+ Pj	Credits
COMMUNITY OUTREACH SERVICES-II		**Practice**	**0+2+0**	2

Course Objective:

This course aims to expose the learners to the outreach activities whereby the learner would appreciate the needs of the society, be responsive to the needs and make the learner socially accountable. Learners will offer services in the community outreach initiatives of the academic/ clinical institution for a specific hour in the semester. They will maintain a logbook of the services rendered and submit a case report of cases seen during the community activities in a specified format. The evaluation will be based on the number of hours of outreach services, logbook maintenance and case reports.

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO1	Demonstrate understanding of community eye health challenges and the importance of equitable access to optometric services through active participation in outreach programs.	PO1,PO2,PO5,PO12,PSO1
CO2	Apply clinical knowledge and skills effectively in real world community settings to provide basic eye care and referrals as needed.	PO1,PO4,PO8,PO11,PSO1
CO3	Exhibit a sense of social responsibility and ethical conduct by contributing	PO1,PO3,PO5,PO10,PSO1

	meaningfully to institutional community outreach initiatives.	
CO4	Maintain accurate and reflective documentation through a structured logbook detailing the services rendered, patient cases, and learning experiences.	PO1,PO5,PO6,PO10
CO5	Prepare and present comprehensive case reports using standardized formats, showcasing clinical reasoning, communication skills, and patient management approaches.	PO1,PO2,PO5,PO10,PSO1

COMMUNITY OUTREACH POSTINGS:

1) School Eye Screening

2) Screening for Adults (Comprehensive adults eye screening camps, Cataract screening camps, Camps for elderly, Camps for differently abled, etc.)

SEMESTER - III

Subject Name	**Code**	**Type of course**	**LTP**	**Credits**
SPECIALIZED CLINICAL OPTOMETRY-CONTACT LENS 2		Theory +Practice	3+1+0	4

Course Description:

Upon completion of the course, the student should be able to understand the contact lens fitting for compromised corneas and keratoconus. The student should also be able to understand the fitting philosophy of orthokeratology and myopia control.

Course Objectives:

At the end of the course, the student will be able to: 1. Fit contacts lenses with all specialized contact lenses 2. Fit prosthetic contact lenses 3. Fit contact lens for pediatric group 4. Fit occupational contact lenses 5. Troubleshoot contact lenses related queries 6. Outline the available products available in the market and the sources 7. Understand the legalities to dispense contact lenses

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO 1	Understand the advanced skills in fitting contact lens.	PO1,PO3,PO5,PO6,PO10,PSO1
CO 2	Identify and manage the adverse effects of contact lens	PO2,PO5,PO6,PO8,PO11,PSO1,PSO3
CO 3	Apply advanced techniques for selecting and fitting specialized contact lenses to address complex refractive errors	PO1,PO3,PO5,PO7,PO10,PSO1,PSO2
CO 4	Evaluate the contact lens design for various kinds of patients	PO2,PO5,PO8,PO11,PSO1, PSO2
CO 5	Create awareness about advantages of contact lenses	PO4,PO6,PO7,PO8,PO12,PSO1,PSO2

Module-I

Introduction to advanced contact lens Microbiology and immunology in relation to contact lens wear, Pharmacology of contact lens solution; review of contact lens solution contents. Contact lens complications; causes and management and patho physiology. Identification of lens deposits. Trouble shooting in CL related problems

Module-II

Ability to fit specialized contact lenses: Keratoconus, Rose-K lenses, Mini scleral lenses, Hybrid lenses, Orthokeratology, Scleral lenses: Dry eyes, SJS, Post PK, Post C3R, Post LASIK ectasia

Module-III (8 hours)

Contact lens prescription in different scenarios: Bifocal and Multifocal contact lenses, Ability to fit custom made ocular prosthesis, Cosmetic and prosthetic contact lens fitting, Ability to fit paediatric contact lenses, Ability to fit contact lens post PK and refractive surgery.

Module-IV (9 hours)

Ability in fitting contact lenses in different occupations and Practice Management Fitting considerations for sports and special situations. Contact lens in different occupation. Advancements in contact lens industry, contact lens instrumentation and techniques, Products

oriented design and material characteristics, setting up your practice - Law and Practice Management.

Text Books:

1. IACLE Modules

2. Anthony J. Phillips : Contact Lenses, 5thedition, Butterworth-Heinemann, 2006

Subject Name	Code	Type of course	T P Pj	Credits
SPECIALIZED CLINICAL OPTOMETRY-BINOCULAR VISION		Theory	**2+0+0**	2

Course Description:

This course is designed to provide the learners an exposure to advanced issues in managing binocular vision anomalies using vision therapy. The learners will be introduced to diagnosis and treatment of sensory-motor disorders of binocular vision, including strabismus, amblyopia, and general binocular dysfunction, special conditions like Accommodative Spasm/ Pseudomyopia, learning related vision problems, sensory-motor issues related to acquired brain injury, their optometric evaluation and Optometrist‟s role in these issues.

Course Objectives:

1. Define the concept related to basics of binocular vision, and interactions between accommodation and Vergence through clinical testing
2. Relate the development of the eye and visual system, and its implications to binocular vision anomalies; Perform a comprehensive Binocular vision assessment and arrive at appropriate diagnosis
3. Define and analyze various types of strabismus, clinical characteristics, effects of visual deprivation, amblyopia, oculomotor control and disruptions, nystagmus and perform appropriate clinical testing for the same
4. Explain the relationship between vision and learning and relate it to visual perceptual assessment, and acquired brain injury
5. Formulate a hierarchical vision therapy protocol for non-strabismic binocular vision dysfunctions and amblyopia

Module-1

Introduction 1. Basics concepts related to binocular vision – brief refreshment 2. Normal development of visual system 3. Interaction between accommodation and vergence 4.

Understanding binocular vision anomalies 5. Clinical assessments involved in identifying binocular vision anomalies

Module-2

Strabismus, Esodeviations, Exodeviations, Vertical deviations, types and clinical characteristics, accommodative and non-accommodative etiologies, oculomotor signs of disorders of the central nervous system,Assessment of optical and visual function in human infants. Refraction and refractive error in infants and children, Effects of visual deprivation. Amblyopia, types and clinical features of Nystagmus.

Module-3

Concepts of Binocular Vision and neural systems: Relationship between vision and learning, visual processing development, Visual information processing and visual perceptual disorders. Parallel pathways for vision, dorsal, ventral streams, mirror neuron system, cerebral vision impairment, acquired brain injury, learning related vision problems, tests for visual perception, Test of Developmental Eye Movements, Test of Visual Perceptual Skills, Beery-Buktenica Visual Motor Integration, Wold Sentence Copy, Piaget Left-Right, Gardner Reversal Frequency, Birch-Belmont Auditory-Visual Integration, binocular vision assessment in sports vision

Module-4

Introduction to vision therapy concepts

1. Vision therapy equipment
2. Formulating a Vision Therapy Protocol – Hierarchical sequencing
3. Vision therapy: In-office and Home
4. Accommodation
5. Vergence
6. Oculomotor dysfunctions
7. Amblyopia
8. Recent advancements in vision therapy
9. Use of Optical aids in Vision Therapy
10. Lenses, prisms, and mirrors,
11. Free space and instrument training,
12. Paper and pencil techniques

Text Books:

1. M. Scheiman, B. Wick, Optometric Management of Learning Related Vision Problems, 2/e., Mosby Inc, 2006.
2. L. J. Press, Applied Concepts in Vision Therapy, St. Louis: Mosby. 2008.
3. M. Scheiman, B. Wick, Clinical Management of Binocular Vision – Heterophoric, Accommodative, and eye movement disorders, 4/e., Lippincott Williams & Wilkins 2014.
4. S. Cotter, Clinical Uses of Prism: A Spectrum of Applications, 1/e., Mosby. 1995.
5. E. Ong, K. J. Ciuffreda, Accommodation, Nearwork, and Myopia. Optometric Extension Program. 1997.

6. G. B. Erickson, Sports Vision: Vision Care for the Enhancement of Sports Performance Butterworth-Heinemann, 2007.

ONLINE RESOURCES:

1. Clinical Practice Guidelines of AOA on Care of the patient with Accommodative and Vergence dysfunction (CPG – 18)
https://www.aoa.org/documents/optometrists/QRG-18.pdf
2. Care of the patient with amblyopia (CPG – 4)
https://www.aoa.org/documents/optometrists/QRG-4.pdf
3. Care of the patient with strabismus (CPG – 12)
https://www.aoa.org/documents/optometrists/QRG-12.pdf
4. Care of the patient with paediatric eye and vision examination (CPG 2)
https://www.aoa.org/documents/optometrists/CPG-2.pdf•

JOURNALS:

1. Optometry (Journal of the American Optometric Association)
2. Journal of Behavioural Optometry
3. Journal of Learning Disabilities
4. Optometry and Vision Development (COVD Journal)
5. Optometry and Vision Science
6. Behavioural Optometry (Australia)

Subject Name	**Code**	**Type of course**	**T+P+Pj**	**Credits**
SPECIALIZED CLINICAL OPTOMETRY-REHABILITATION		Theory	**2+0+0**	2

Course Description:

This course aims to provide the learners both in-depth theoretical knowledge and clinical exposure in rehabilitation. The course enables the learner to understand the nature of the rehabilitation, its functional and psychosocial consequences of rehabilitation measures.

Course Objectives:

1. Define different approaches to rehabilitation and can able to recite the available laws

in relation to rehabilitation
2. Assess the psychology of the patients and understand the social and psychological

limitations in relation with the rehabilitation approach
3. Outline various available rehabilitation methods and resources for children
4. Outline various available rehabilitation methods and resources for adults and elderly

MODULE – I

Introduction and Legal aspects in Rehabilitation

1. Introduction to Rehabilitation: In western, in Asia and Personnel preparation for rehabilitations

2. Concept of Rehabilitation

3. Availability and Limitations in current medical treatments and the need for visual rehabilitation with respect to Indian Scenario,

4. Legal aspects of rehabilitation: Right to Persons with Disabilities act (2016), other related legal aspects and amendments towards betterment of visual challenged

MODULE - II

Psychological and social factors in visual Adaptation and Rehabilitation
1. The Role of psychosocial Factors in adaptation to vision Impairment and rehabilitation outcomes for Children and Youth
2. The Role of psychosocial Factors in adaptation to vision Impairment and rehabilitation outcomes for Adults and Older adults
3. Social support and adjustment to vision Impairment across the life span
4. The person – Environment perspective of vision impairment
5. Associated Depression, Disability and rehabilitation
6. Methodological strategies and issues in social research on vision Impairment and rehabilitation

MODULE - III

Rehabilitation for children
Functional Vision evaluation of Infants, Educational assessment of visual function in Children, Classroom environment and academic activities, Support as an Optometrist, Early intervention in infants with low vision / Vision stimulation, Different types of schooling, Mainstreaming the child with visual impairment, Integrated/Inclusive

modes of education, Holistic approach in visual Rehabilitation, Environmental modification at home and office, Performing basic activities of daily living, Available vocations / Vocational training / Independent living skills, Disability concessions for the visually impaired / Social security

MODULE – IV

Rehabilitation for adults:

Holistic approach in visual Rehabilitation, Environmental modification at home and office, Performing basic activities of daily living, Available vocations / Vocational training / Independent living skills, Disability concessions for the visually impaired / Social security, Job placement according to the educational qualification, Orientation and Mobility training, Independent living skills including cooking, cleaning, sweeping, ADL

Rehabilitation of older Adults with Vision Impairment:

Environmental modification at home, Performing basic activities of daily living, Disability concessions for the visually impaired, social and financial security

Textbooks/Reference:

1. Silverstone, Lighthouse Handbook on Vision Impairment and Vision Rehabilitation – Volume I and II. Oxford University press, 2000.
2. Dickinson. Low Vision – Principles and Practice, Butterworth Heinemann, 2002.
3. M. V. S. Sailaja, G. Sarika, E. Vaithilingam, Practice of Low Vision Care Guide for Eye Care Professionals, 2/e., Sankara Nethralaya, 2015.
4. R. T. Jose, Understanding Low Vision, American Foundation for the Blind, 1994.
5. A. H. Lueck, Functional Vision: A Practitioner‟s Guide to Evaluation and Intervention, AFB Press, 2004

Subject Name	**Code**	**Type of course**	**LTP**	**Credits**
ELECTIVE II		**Theory**	**2+0+0**	**2**

Course Description:

1. Advanced Ocular Disease (Retina, Glaucoma, Cornea)
2. Teaching Assitance-1
3. Occupational Optometry
4. Orientation and Mobility
5. Data science
6. Ophthalmic Genetics and Genetic Counselling

7. Course relevant to optometry as decided by the respective institute.

Course Plan

Faculty/ Institute can decide the course plan keeping in mind the need for meeting the required credit hours in 15 weeks.

Subject Name	Code	Type of course	LTP	Credits
SCIENTIFIC COMMUNICATION		**Theory**	**2+0+0**	**2**

Course Description:

This course gives a comprehensive introduction to the learners that will help them create effective scientific communication along with preparation of technical documents.

Course Objectives:

1. Relate to the purpose and infer about an audience, and show ethical issues of technical communication, Outline key aspects, build on conducting interviews and surveys
2. Plan and compose a technical proposal, approach to review board and ethics committee
3. Identify important aspects of visual technical communication and utilize it
4. Determine significant aspects of oral technical communication and plan for giving effective oral presentations
5. Identifying and effectively choosing the mode of communication to communicating with peers

Module 1

Audience, purpose and Genre – technical communication, linking purpose and audience, Ethical issues of technical communication – Ethical writing and its relation to technical communication, Interviewing and conducting surveys – Preparation and reporting the outcomes, Visual technical communication - Visuals for effective communication, guidelines for preparing and giving presentations

Module 2

Proposal Writing: Research Proposals, Grant Proposals, Approvals from Review Boards and Ethics Committee, Dissertation writing and Manuscript writing: Consolidating the literature, addressing reviewer comments

Module 3

Oral technical communication - Common speaking occasions, formal and informal presentations, guidelines for preparing and giving presentations, Communicating to peers: Defense/ VIVA voce, Letter to editors, view point articles, guest editorials, Media and social network - Communicating scientific content to the public

Text Books:

H. Graves, R. Graves, A Strategic Guide to Technical Communication, 2/e, Broad view press, 2012.

Subject Name	Code	Type of course	LTP	Credits
RESEARCH PROJECT – III		Theory	4+0+0	4

Course Description:

This course aims to enable the learner to appreciate the theoretical concepts learnt on the basics of research and apply it to initiate a research and propose an action plan. It would also prepare the learner to seek permissions from the relevant research bodies. During the course the learner is expected to collect data, clean, code and analyse data, write a dissertation report till results and discussion. Student should attend periodic journal clubs, interact with peers, faculty and guide and plan for publication of the work in discussion with the respective guides.

Course Objectives:

1. Collect data and analyse
2. Present the results in relevant formats like tables and figures
3. Write the dissertation report
4. Plan for a manuscript writing

Subject Name	Code	Type of course	L+T+P	Credits
GENERAL CLINICS III	CUTM1793	Theory	3+2+0	5

Course Objectives:

This course aims to expose the learner to different specialty out patient departments and general clinics to provide comprehensive optometric care.

Learning outcome

1. Appreciate the diversities pertaining to the ocular problems among patients

presenting to the hospital
2. Handle the patients with their applied knowledge

CLINICAL POSTINGS:

1. General OPD/ Emergency
2. Glaucoma OPD
3. Neuro OPD
4. Pediatric OPD
5. Uvea OPD
6. Vitreoretina OPD
7. Cornea OPD
8. Community OPD

Each learner is expected to maintain clinic logbook, submit one case report per specialty as mentioned above and compulsorily attend all the weekly and special seminars.

Subject Name	**Code**	**Type of course**	**L+T+P**	**Credits**
SPECIALTY OPTOMETRY CLINICS – III		Practice	0+6+0	6

COURSE OBJECTIVE:

This course aims is to expose the learner to different optometry specialty clinics and diagnostic specialties to equip the learner correlate, assimilate the findings related to their research area of interest

Course Outcomes:

COs	**Statements**	**COs with POs and PSOs Mapping**
CO 1	Hands-on experience of special diagnostic clinics and also for carry forwarding the dissertation project under the guidance of senior	PO1,PO2,PO5,PO12,PSO1

CO 2	Analyze Optometrist/Ophthalmologist and taking part in community outreach camps Clinical postings in Community Diagnostic.	PO1,PO4,PO8,PO11,PSO1
CO 3	To be able to execute the basic skills on eye care	PO1,PO3,PO5,PO10,PSO1
CO 4	Evaluate patients in Centre/hospitals/clinical set-up (for a maximum period of 2 months in the entire 4th semester)	PO1,PO5,PO6,PO10
CO 5	Generate handling special instruments: OCT, A-scan, B-scan	PO1,PO2,PO5,PO10,PSO1

LEARNING OUTCOMES:

1. Gain exposure to different optometric specialty clinics and diagnostic specialties and able to interpret the test results
2. Utilize and translate the knowledge from these specialty clinics to their research avenues

CLINICAL POSTINGS:

1. Binocular Vision / Vision therapy clinic
2. Low Vision Clinic
3. Contact lens Clinic
4. Refraction / Myopia control clinic
5. Occupational Optometry Clinic

DIAGNOSTIC POSTINGS:

1. Glaucoma Diagnostics (UBM, ASOCT, Visual Fields, OCT)
2. Retina Diagnostics (OCT, FFA, B Scan, Electro diagnostics)
3. Cornea Diagnostics (ASOCT, Pentacam, Topography, Abberometer)

Each learner is expected to maintain clinic logbook, submit one case report per specialty as mentioned above and compulsorily attend all the weekly and special seminars.

Subject Name	**Code**	**Type of course**	**LTP**	**Credits**
COMMUNITY OUTREACH SERVICES-III		Practice	0+2+0	2

Course Objective:

This course aims to expose the learners to the outreach activities whereby the learner would appreciate the needs of the society, be responsive to the needs and make the learner socially accountable. Learners will offer services in the community outreach initiatives of the academic/ clinical institution for a specific hour in the semester. They will maintain a logbook of the services rendered and submit a case report of cases seen during the community activities in a specified format. The evaluation will be based on the number of hours of outreach services, logbook maintenance and case reports.

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO 1	Demonstrate understanding of community eye health challenges and the importance of equitable access to optometric services through active participation in outreach programs.	PO1,PO2,PO5,PO12,PSO1
CO 2	Apply clinical knowledge and skills effectively in real world community settings to provide basic eye care and referrals as needed.	PO1,PO4,PO8,PO11,PSO1
CO 3	Exhibit a sense of social responsibility and ethical conduct by contributing meaningfully to institutional community outreach initiatives.	PO1,PO3,PO5,PO10,PSO1
CO 4	Maintain accurate and reflective documentation through a structured logbook detailing the services rendered, patient cases, and learning experiences.	PO1,PO5,PO6,PO10
CO 5	Prepare and present comprehensive case reports using standardized formats, showcasing	PO1,PO2,PO5,PO10,PSO1

	clinical reasoning, communication skills, and patient management approaches.	

COMMUNITY OUTREACH POSTINGS:

1) School Eye Screening
2) Screening for Adults (Comprehensive adults eye screening camps, Cataract screening camps, Camps for elderly, Camps for differently abled, etc.)

SEMESTER - IV

Subject Name	**Code**	**Type of course**	**T+P+Pj**	**Credits**
SPECIALISED CLINICAL OPTOMETRY – VISION THERAPY, NEURO-OPTO METRY		Theory	2+0+0	2

Course Description

This course is designed to provide the learners an exposure to advanced issues in binocular vision and its management. The learners will be introduced to diagnosis and treatment of sensory-motor disorders of binocular vision. The course will also provide advanced training to the learners in Neuro-Optometry and Neuro-Optometric vision therapy, evaluating patients with Traumatic brain injury and Cerebrovascular Accidents such as Stroke, and cranial nerve paresis. The course will help to understand the specialized evaluation protocols and Neuro-optometric rehabilitation.

Course Objectives:

1. To formulate a hierarchical vision therapy protocol for non-strabismic binocular

vision dysfunctions, amblyopia
2. To apply the knowledge of Neuro-anatomical pathways for the control of eye
position and movement
3. To discuss the evaluation and treatment of Visual field loss and visual spatial neglect,

evaluation of Visual and vestibular system in Traumatic brain injury, Egocentric localization, management for altered visual adaptation in ABI 4. To discuss the various vision rehabilitation techniques in Brain Injury.

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO 1	Understand in detail how a vision therapy works and what are the clinical practice in it.	PO1,PO13,PSO1
CO 2	Interpret orthoptic functions of the human eye through case discussions and practical exposures.	PO2,PO10,PSO1
CO 3	Organize an orthoptics and vision therapy session for patients having binocular vision defects.	PO3,PO4,PSO1
CO 4	Evaluate the ethical considerations and potential benefits of collaborating with professionals from both orthoptics and optometric fields.	PO6,PO8,PSO3
CO 5	Develop and design sessions for individual binocular vision Defects	PO5,PO11,PSO1

MODULE – I

Vision therapy equipment, formulating a Vision Therapy Protocol – Hierarchical sequencing, vision therapy for accommodation, vergence and oculomotor dysfunctions, lenses, prisms, and mirrors, free space and instrument training, paper and pencil techniques, vision therapy for amblyopia, recent advancements in Vision Therapy

MODULE – II

Anatomy of the visual cortex, pathway for vision, pupils, and eye movements, Structure and function of the early visual pathway including retinal ganglion cells, optic nerves, lateral geniculate nucleus and visual cortex. Taking history and understanding neuro-ophthalmic emergencies, visual loss of uncertain origin, Neuro-optometric assessment

MODULE - III

Neuro-anatomical pathways for the control of eye position and movement; gaze holding, image stabilization and tracking eye movement systems; oculomotor signs of disorders of the central nervous system (palsies, nystagmus, opthalmoplegia, cog-wheel pursuits, saccadic dysmetria); the near visual-motor response and the synergistic coupling of accommodation and convergence; binocular misalignment (heterophoria and fixation disparity, Visual and vestibular system in Traumatic brain injury (TBI), diplopia assessment, Hess, Diplopia charting, assessment of reading, Readalyzer, Vision rehabilitation in brain injury, training in compensatory scanning, Prisms and its applications. Interdisciplinary management and rehabilitation

Textbooks/References:

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

Subject Name	**Code**	**Type of course**	**LTP**	**Credits**
ELECTIVE III		Theory	2+0+0	2

Course Description:

Students should choose any one of the following elective courses or any course relevant to their area of interest.

1. Innovations in Ocular diagnostics
2. Teaching Assistance-2
3. Sports Optometry
4. Quality of life assessment and patient reported outcomes.
5. Non-optical refractive management
6. Health economics

Course Plan:

Faculty/ Institute can decide the course plan keeping in mind the need for meeting the required credit hours in 15 weeks.

Subject Name	**Code**	**Type of course**	**LTP**	**Credits**
RESEARCH PROJECT – IV		Theory	**6+0+0**	6

Course Description:

This course enables the learner to critically review, propose, plan, implement and judge an appropriate research idea into reality, discuss on the results and conclude decisions based on the work. During the course, the learner will complete data collection, analyse the data and conclude, understand the scope and limitations of the work and

present a complete report. Learner will also have periodic discussions with the guide and incorporate the discussion agenda into the research work.

Course Obejctives:

1. To use appropriate strategy to clean and code the collected data
2. To use suitable statistical methods to present results
3. To complete research from the initial steps of problem identification to the final outcome
4. To submit a dissertation on their relevant research interest area
5. To defend the work to vision scientists, clinicians and public
6. To submit a manuscript in indexed journal.

Subject Name	Code	Type of course	T+P+ Pj	Credits
GENERAL CLINICS IV		Practice	0+8+0	8

Course Objective:

This course aims to expose the learner to different specialty out patient departments and general clinics to provide comprehensive optometric care.

Learning Outcomes:

1. Appreciate the diversities pertaining to the ocular problems among patients presenting to the hospital
2. Handle the patients with their applied knowledge.

CLINICAL POSTINGS:

1. General OPD/ Emergency
2. Glaucoma OPD
3. Neuro OPD
4. Pediatric OPD
5. Uvea OPD
6. Vitreoretina OPD
7. Cornea OPD
8. Community OPD

Each learner is expected to maintain clinic logbook, submit one case report per specialty

as mentioned above and compulsorily attend all the weekly and special seminars.

Subject Name	Code	Type of course	L-P-Pj	Credits
SPECIALTY OPTOMETRY CLINICS – IV		Practice	0+8+0	8

Course Objectives:

This course aims is to expose the learner to different optometry specialty clinics and diagnostic specialties to equip the learner correlate, assimilate the findings related to their research area of interest.

Learning outcomes:

1. Gain exposure to different optometric specialty clinics and diagnostic specialties and

able to interpret the test results
2. Utilize and translate the knowledge from these specialty clinics to their research
avenues

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO 1	Hands-on experience of special diagnostic clinics and also for carry forwarding the dissertation project under the guidance of senior	PO1,PO2,PO5,PO12,PSO1
CO 2	Analyze Optometrist/Ophthalmologist and taking part in community outreach camps Clinical postings in Community Diagnostic.	PO1,PO4,PO8,PO11,PSO1
CO 3	To be able to execute the basic skills on eye care	PO1,PO3,PO5,PO10,PSO1

CO 4	Evaluate patients in Centre/hospitals/clinical set-up (for a maximum period of 2 months in the entire 4th semester)	PO1,PO5,PO6,PO10
CO 5	Generate handling special instruments: OCT, A-scan, B-scan	PO1,PO2,PO5,PO10,PSO1

CLINICAL POSTINGS:

1. Binocular Vision / Vision therapy clinic
2. Low Vision Clinic
3. Contact lens Clinic
4. Refraction / Myopia control clinic
5. Occupational Optometry Clinic

DIAGNOSTIC POSTINGS:

1. Glaucoma Diagnostics (UBM, ASOCT, Visual Fields, OCT)
2. Retina Diagnostics (OCT, FFA, B Scan, Electro diagnostics)
3. Cornea Diagnostics (ASOCT, Pentacam, Topography, Abberometer)

Each learner is expected to maintain clinic logbook, submit one case report per specialty as mentioned above and compulsorily attend all the weekly and special seminars.

Subject Name	**Code**	**Type of course**	**LTP**	**Credits**
COMMUNITY OUTREACH SERVICES-IV		Practice	**0+2+0**	2

Course Objective:

This course aims to expose the learners to the outreach activities whereby the learner would appreciate the needs of the society, be responsive to the needs and make the learner socially accountable.

Learners will offer services in the community outreach initiatives of the academic / clinical institution for the specific hours in the semester. They will maintain a logbook of the services rendered and submit a case report of cases seen during the community activities in a specified format. The evaluation will be based on the number of hours of outreach services, logbook maintenance and case reports.

Course Outcomes:

COs	Statements	COs with POs and PSOs Mapping
CO 1	Demonstrate understanding of community eye health challenges and the importance of equitable access to optometric services through active participation in outreach programs.	PO1,PO2,PO5,PO12,PSO1
CO 2	Apply clinical knowledge and skills effectively in real world community settings to provide basic eye care and referrals as needed.	PO1,PO4,PO8,PO11,PSO1
CO 3	Exhibit a sense of social responsibility and ethical conduct by contributing meaningfully to institutional community outreach initiatives.	PO1,PO3,PO5,PO10,PSO1
CO 4	Maintain accurate and reflective documentation through a structured logbook detailing the services rendered, patient cases, and learning experiences.	PO1,PO5,PO6,PO10
CO 5	Prepare and present comprehensive case reports using standardized formats, showcasing clinical reasoning, communication skills, and patient management approaches.	PO1,PO2,PO5,PO10,PSO1

COMMUNITY OUTREACH POSTINGS:

1) School Eye Screening

2) Screening for Adults (Comprehensive adults eye screening camps, Cataract screening camps, Camps for elderly, Camps for differently abled, etc.)