CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT, ODISHA

SCHOOL OF PARAMEDICS AND ALLIED HEALTH SCIENCES

MASTER OF SCIENCE IN OPTOMETRY

2 Year Course

2024

SYLLABUS

Master of Science in Optometry is a professional degree that offers specialist advice on eye care. Adequate training in Optometry also enables professionals to specialize in the fields of low vision rehabilitation, advanced contact lenses, binocular vision, vision therapy, neuro-optometric rehabilitation etc. The program is aimed at providing the students with excellent hands-on training and rigorous theoretical knowledge. In a nutshell, a career after Masters in Optometry offers personal growth, unlimited opportunity, respect in society, contribution to the community for improving healthcare, and as a result good quality of life, job flexibility and financial success.

Master of Science in Optometry program is recommended to the graduates in Optometry to uplift their knowledge in Vision Science, Clinical diagnosis & Optometric Management Practices. The course is aimed to train the participants for professional specialization in various areas of Optometry: contact lenses, pediatric optometry, low vision, etc. Apart from this, they will be able to conduct eye tests to examine the patient's vision, prescribe eyeglasses & contact lenses, plan for vision therapy & low vision rehabilitation. The course trains students for both specialized professional practice and research.

Program: Master of Optometry (M. Optom)

Duration: Two-year Program (Including 6months of Dissertation project in the last semester)

Eligibility: Bachelor Degree in Optometry from any recognized University (Minimum marks in B. Optom / BSc. Optometry should be 50%)

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 and completed 6 months of compulsory Dissertation project in the last semester.

On successful completion of Two-year program, with a minimum course credit of 96 credits, the candidate will be awarded with "Master of Science 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.

PROGRAMME STRUCTURE

Master of Science in Optometry

Choice Based Credit System (CBCS) Structure

Category	Minimum Credits to be completed	Minimum Credits to be completed
School (Core)	**14**	**96**
Discipline (Core)	**42**	
Skill Basket[#]	**8**	
Value Added[**]	**4**	
AECC	**6**	
Summer Internship[##]	**2**	
Project	**10**	
Internship	**10**	

PROGRAMME OUTCOME

PO	Outcomes
PO1	Apply knowledge of basic science and allied health science.
PO2	Design and conduct experiments, as well as to carry out problem analysis data interpretation
PO3	Design and develop process to meet desired needs within realistic constraints.
PO4	Function effectively as a leader and member of multidisciplinary teams.
PO5	Isolate, identify, synthesize, formulate and solve complex healthcare problems.
PO6	Understanding of professional and ethical responsibility
PO7	Communicate effectively
PO8	Understand the impact of allied healthcare in a global, economic, environmental, and societal context

PO9	Manage contemporary healthcare projects and their financial implications.
PO10	Use the techniques, skills, and modern healthcare instruments and tools necessary for allied health profession.
PO11	Analyze, screen and ensure quality in healthcare delivery.
PO12	Engage in life-long learning
PO13	Demonstrate a knowledge and understanding of contemporary technologies, their applications and limitations, contemporary research in the broader context of relevant fields

Program-Specific Outcomes

PSO	STATEMENT
PSO1.	To demonstrate high level of clinical expertise in optometry should be able to perform comprehensive eye examinations refractive problems diagnosis and treatment.
PSO2.	To develop graduates research skills and their ability to critically evaluate scientific literature, should be able to conduct research in optom can work in the private, semi-governmental, optometry field.
PSO3	To demonstrate strong commitment to ethical practice and professional conduct.

BASKET - I				
Sl. No	**CODE**	**SUBJECT**	**SUBJECT TYPE (T+P+Pj)**	**CREDITS**
SC-1	CUTM1721	Research Methodology	2+0+1	3
SC-2	CUTM1958	Business and Clinical Aspects of Optometry	2+0+1	3
SC-3	CUTM1971	Recent Advancement in Optometry	2+0+2	4
SC-4	CUTM1960	Applied Optometric Optics	2+2+0	4

BASKET - II				
Sl. No	**CODE**	**SUBJECT**	**SUBJECT TYPE (T+P+Pj)**	**CREDITS**
DC-1	CUTM4267	Geriatric optometry and low vision	3+0+1	4
DC-2	CUTM4268	Advanced Ophthalmic Diagnostic Procedures & Instrumentation	2+1+0	3
DC-3	CUTM1962	Epidemiology and Community Optometry	2+0+1	3
DC-4	CUTM1963	Introduction to LASER Technology	1+0+2	3
DC-5	CUTM4271	LASER Technology	3+0+1	4
DC-6	CUTM4272	Orthoptics and Vision Therapy	2+1+0	3
DC-7	CUTM1966	Advanced contact lens practice -I	2+2+0	4
DC-8	CUTM4269	Pediatric Optometry and binocular Vision I	2+2+0	4
DC-9	CUTM4270	Pediatric Optometry and Binocular Vision II	2+2+0	4
DC-10	CUTM1971	Advanced contact lens practice II	2+2+0	4
DC-11	CUTM1972	Ocular diseases & Therapeutics	2+0+1	3
DC-12	CUTM1973	Neuro- Optometry	2+1+0	3
DC-13	CUTM1974	Specialty Clinic	0+10+0	10
DC-14	CUTM4273	Dissertation	0+0+10	10

RECENT ADVANCEMENT IN OPTOMETRY

Subject Name	Code	Type	T + P + Pj	Credits
Recent Advancements in Optometry	CUTM1959	Theory+Project	2+0+2	4

Course Objective:

- Equip students with an in-depth understanding of the latest technological advancements in optometry.
- Develop students' ability to critically evaluate and integrate recent research findings into clinical practice.
- Train students in the application of advanced clinical techniques
- To understand protocols that have emerged from recent research and technological development.

Course Outcome:

After completion of this course, the students will be able to:

CO	Statements	Cos with POs and PSOs Mapping
CO 1	Understand about various international journals vested for the research in optometry.	PO6, PO13,PSO2
CO 2	Analyze various research projects and scope of research in the field of optometry.	PO2,PO3,PO13,PSO2
CO 3	valuate about various international journals vested for the research in optometry	PO6,PO13,PSO2
CO 4	Generate awareness about the advancements in optometry.	PO7,PO8,PO13,PSO1
CO 5	Recall the key recent advancements in optometry, including new diagnostics tools, imaging techniques and treatment modalities.	PO10, PO13, PO12,PSO1, PSO2

Course Outline:

Module I:

Introduction to Recent Advancements in Optometry, Overview of cutting-edge technologies in

optometry, Importance of staying updated with current research, Introduction to key journals and sources of new information in optometry and vision science.

Module II:

Critical Analysis of Recent Research Articles, How to read and interpret scientific research papers, Key components of research articles (abstract, methods, results, discussion, conclusion), Case studies and group discussions on selected articles, Tools and resources for accessing the latest research

Module III:

Principles of evidence-based optometry, Integrating research findings into clinical practice, Evaluating the quality of evidence and clinical guidelines, Examples of evidence-based interventions in optometry

Module IV:

Formulating a research question and objectives, Conducting a comprehensive literature review, Identifying gaps in current knowledge, Writing a literature review section

Module V:

Advanced diagnostic tools and imaging techniques, Innovations in vision correction (e.g., ortho-k, advanced contact lenses, LASIK), Myopia control and management, New therapeutic approaches for ocular diseases

SUGGESTED READING:

1. Literature review of National and International optometry Journal

RESEARCH METHODOLOGY

Subject Name	Code	Type	T + P + Pj	Credits
Research Methodology	CUTM1721	Theory+Project	2-0-1	3

Course Objective:

- Develop foundational knowledge of quantitative and qualitative research methodologies.
- Learn to design, conduct, and manage research projects from start to finish.
- Acquire skills in diverse data collection and analysis techniques.
- Understand ethical and methodological principles in research practice.

Course Outcome:

After completion of this course, the students will be able to:

CO	Statements	Cos with POs and PSOs Mapping
CO 1	Understand the ethical and philosophical issues associated with research writing	PO6,PO13,PSO2,PSO3
CO 2	Implement the methods of data collection	PO2 ,PO10,PSO2
CO 3	Demonstrate the ability to choose methods appropriate to research aims and objectives	PO3,PO5,PO13,PSO2
CO 4	Critically evaluate research findings.	PO2,PO11,PO13,PSO2
CO 5	Develop research hypothesis and sample design	PO2,PO3,PO5,PSO2

Course Outline:

Module I:

Introduction to research: definition, scope, limitations, and types, Objectives of research and the research process, Proposal development: steps in health research proposal development, Literature review: importance, sources, and strategies for information access.

Module II:

Research design: criteria for selecting research titles and formulating objectives, Data collection: primary and secondary data, methods of data collection, Scaling techniques: types, rating, ranking, and multi-dimensional scaling.

Module III:

Sampling design: concepts, types, and techniques, including sample size decision, Hypothesis: definition, importance, and types of research hypotheses, Theory of estimation and hypothesis testing: small and large sample tests (t, F, Z, Chi-square).

Module IV:

Designing effective questionnaires and conducting interviews, Data management: tabulation, coding, and editing, Techniques for improving data reliability and accuracy.

Module V:

Interpreting research findings and presenting results, Structuring research reports for academic and professional purposes, Best practices in writing and disseminating research findings.

Project:

Writing a review on Nosocomial urinary tract infection.

Writing a research article on antibiotic resistance patterns in wound infections. Writing a review on Virus culture Literature survey on Covid-19

Suggested readings:

1) Research Methodology By C.R. Kothari (3rd Ed)

2) Research Methodology In The Medical & Biological Sciences By Petter Laake Et Al.

3) Essentials Of Research Design And Methodology By Geoffrey Marczyk Et Al.

4) WHO, Health Research Methodology: A Guide For Training In Research Methods, 2nd Edition, WHO- WIPRO

5) A Student's Guide To Methodology By Clough P And Nutbrown C. Sage Publication.

6) National Ethical Guidelines For Health Research In Nepal, Available At Nepal Health Research Council.

Business And Clinical Aspects of Optometry

Subject Name	Code	Type	T + P + Pj	Credits
Business and Clinical Aspects of Optometry	CUTM1958	Theory+Project	2+0+1	3

Course Objective:

- Understand the fundamentals of business management in optometric practice.
- Learn strategies for effective patient care and clinical workflow optimization.
- Acquire skills in financial planning and marketing for optometry services.
- Develop knowledge of legal and ethical considerations in optometric practice management.

Course Outcome:

After completion of this course the students will be able to:

CO	Statements	Cos with POs and PSOs Mapping
CO 1	Understand the basic business models and also gather the knowledge of developing their own Optometry practice set up.	PO1,PO8,PO9,PSO1,PSO2
CO 2	Execute the knowledge of business in clinical optometry setup	PO9.PO10,PO7,PSO1,PSO2
CO 3	Compare the difference between applied and clinical optometry	PO3,PO13,PSO1
CO 4	Evaluate the integration of business strategies and clinical practices within the field of optometry.	PO8.PO9,PO11,PSO1,PSO3
CO 5	Assemble a clinical optometry setup	PO3,PO9,PO10,PSO1,PSO2

Course Outline:

MODULE: I

Training in business, marketing & management skills and understanding financial management

MODULE: II

Understanding & evaluating potential target markets

MODULE: III

Reviewing & Optimizing products/service mix for target markets.

MODULE: IV

Business set up, product development, retail sales, marketing.

MODULE: V

Systems & procedures in human resources.

Suggested readings:

1) Business Aspects of Optometry –John Classes, Donald Lakin, Butterworth Heinemann

2) Business Awareness for Optometry – Nizar Hirji, Butterworth Heinemann

3) Management of Eye Care Practitioner – Irving Bennett, Butterworth Heinemann

4) Management for Opticians Thomas Appler, Raymond Dennis, Eric Muth, Butterworth Heinemann. Marketing, Managing and Contact Lenses – Robert Koetting, Butterworth Heinemann

Applied Optometric Optics

Subject Name	Code	Type	T + P + Pj	Credits
Applied Optometric Optics	CUTM1960	Theory + Practice	2+2+0	4

Course Objective:

- Understand the optical properties of light and their application in vision science.
- Explore the anatomy and function of the eye as a visual system.
- Learn advanced techniques in optical dispensing and patient care.
- Apply optical principles to enhance the design and fitting of visual aids.

Course Outcome:

After completion of this course the students will be able to:

CO	Statements	Cos with POs and PSOs Mapping
CO 1	To explain the relationship between various optical components and their impact on visual perception.	PO1, PO13, PSO1
CO 2	To dispense the most suitable form of optical correction taking into account durability,comfort cosmetic appearance and lifestyle	PO7, PO8, PO10, PSO1, PSO3
CO 3	To examine the refractive errors of the patient.	PO1, PO5, PO10, PSO1
CO 4	Demonstrate knowledge and skills of optical appliances and dispensing and interactionof visual correction.	PO3, PO10, PO13, PSO1, PSO2
CO 5	Develop a structured treatment for different types of refractive error.	PO3, PO5, PO11, PSO1, PSO3

Course Outline:

MODULE: I

The eye as an optical system, Measurements of the optical constants of the eye., Correction of Ametropia.

MODULE: II

Aberration and ophthalmic lens., Clinical aberrometry. Optics of refractive surgery. Wavefront-guided refraction and treatments., Optical principles of Low vision and contact lens Dispensing Optics.

MODULE: III

Measuring Monocular & binocular PDs both distance & near with PD Ruler, Pupillometer, Dot method Spectacle lenses (characteristics of lens materials, ISI standards for ophthalmic lens, Lens design), Prism (Properties & uses in optometry), Lens surfacing & quality (principles of lens surface generation, glass assessment, faults in lens materials & lens surface, inspection of lens quality)

MODULE: IV

New generation ophthalmic lens materials.,Lens for special uses- Fresnel lenses, thin-lite lenses, aspheric, hi-index, absorptive & protective & photochromatic lenses, high refractive error lenses,Anisometropia and aniseikonia., Absorptive lenses and coatings.

MODULE: V

Progressive addition lenses (designs, marking & fitting, trouble shooting), Spectacle frames (designs, materials, types, measurements & marking), Dispensing aids (latest instruments, organization of dispensing counter, cosmetic & functional dispensing, final checking, adjustments & dispensing prescription spectacle, patient education on handling of spectacle lenses, trouble shooting), Ophthalmic Prisms and decentration.

Practice:

2. CL fitting: RGP and Soft CL
3. IPD measurement: Manual and automated
4. Ophthalmic lens markings: Optic center finding, Bi-focal marking
5. PAL design
6. Retinoscopy to find out final lens Rx: Static and Dynamic retinoscopy

Suggested readings:

a. Optics of human eye – Smith Etchision. Butterworth Heinemann.
b. Clinical optics – BUDD APPLETON. Butterworth Heinemann
c. Spectacle Lenses – Theory and practice – Coling Fowler, Butterworth Heinemann.
d. Ophthalmic Lenses and dispensing – M.Jalie, Butterworth Heinemann.

BASKET II

Discipline Core Courses

ADVANCED OPHTHALMIC DIAGNOSTIC PROCEDURES & INSTRUMENTATION

Subject Name	Code	Type	T + P + Pj	Credits
Advanced Ophthalmic Diagnostic Procedures & Instrumentation	CUTM4268	Theory + Practice	2+1+0	3

Course Outcome:

After completion of this course the students will be able to:

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	PO2,PO10,PSO1

	clinical uses.	
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

Course Outline:

Module I:

Refraction instruments: Designs & features of standard test charts, trial frame, Phoropter units (manual & automated).,Slit lamp Biomicroscope: Designs, features, and applications.

,Tonometers: Designs, features, and applications.,Anterior segment diagnostics: Corneal topography (videokeratography, Specular microscopy, Corneal Hysteresis, Aberometry, Pentacam, ORB scan).

Practice:

- GAT, Schiotz, NCT

Module II:

Glaucoma and Posterior Segment Diagnostics,Glaucoma diagnostics: Gonioscopy, computerized Visual field analysis (Perimetry).,Posterior segment diagnostics: ERG, EOG, VER, FFA, OCT, HRT, GDx, ONH evaluation, fundus photography.

Practice FA, Visual confrontation Test

- H

Module III:

Orthoptic instruments used in assessment & management of binocular vision disorders, Electrodiagnostics: ERG, EOG, VER.

Practice:

- HFA, Visual confrontation Test

•Module IV:

Cataract evaluation and Color vision devices, Lensometer: Designs & features (manual and automated).Binocular indirect Ophthalmoscopy.

Practice:

- Manual and Automated Lensometer
- Color Vision Test

Module V:

Special instruments and tests: Brightness acuity test, Vision analyzer, Pupilometer, Video acuity test, Potential Acuity Meter, Aberrometer.

Practice:

- Specialized tests and evaluations as required.

Suggested reading:

1. Optometric Instrumentation: David Hensen
2. Diagnostics and imaging techniques in Ophthalmology: Amar Agarwal
3. James Wolffsohn: Eye Essentials Ophthalmic Imaging
4. Mark Brezinski: Optical Coherence Tomography: Principles and Applications
5. Benjamin F. Boyd: Wavefront analysis aberrometers and corneal topography
6. Arun D. Singh: Ophthalmologic Ultrasound, An Issue of Ultrasound Clinics, vol3

EPIDEMIOLOGY AND COMMUNITY OPTOMETRY

Subject Name	Code	Type	T + P + Pj	Credits
Epidemiology and Community Optometry	CUTM1962	Theory + Project	2+0+1	3

Course Objective:

- Understand the global prevalence and epidemiology of common eye disorders.
- Analyze and interpret epidemiological data related to vision health.
- Explore community-based practices for the prevention and management of eye disorders.
- Develop strategies to implement effective optometric care in community settings.

Course Outcome:

After completion of this course the students will be able to:

COs	Statements	COs with POs and PSOs Mapping
CO1	To Understand the fundamentals of epidemiology and its types.	PO1,PO13,PSO2
CO2	Interpret the epidemiological prevalence of common eye disorders worldwide	PO2,PO8,PSO2
CO3	Organize different the community service procedure related to optometry	PO4,PO7,PSO3
CO4	Evaluate the effectiveness of community optometry programs and interventions based on epidemiological evidence.	PO5,PO11,PO13,PSO2
CO5	Investigate the prevalence of different ocular diseases in community	PO2,PO8,PSO2

Course Outline:

Module I:

Epidemiology and Eye Care Program, Epidemiology of Blinding Eye Diseases. Skills for Field Projects in Eye Care, Eye Care Programs: Basic Epidemiology, Methodology, Study Methods, and Types of Study Designs, Screening for Visual Disorders, Childhood Blindness, Refractive Errors, Presbyopia, Age-related Cataract, Low Vision, Diabetic Retinopathy, Glaucoma, Age-related Macular Degeneration, Vitamin A Deficiency.

Module II:

Corneal Diseases, Health Economics, and Childhood Eye Disease, Corneal External Diseases: Prevention Strategies, Introduction to Health Economics, Childhood Eye Disease and Ocular Infections.

Module III:

VISION 2020 and National Health Programs, How to Plan and Implement a VISION 2020: The Right to Sight Project.Skills, Resources, and Technology for VISION 2020,Proposal Development,National Health Programs & Role of Optometrist,Various National Health & Community Eye Programs,National Health & Eye Care Policies: Vision 2020 The Right to Sight.Role of Optometrists in National Health Programs for Prevention of Blindness.

Module IV:

Analyzing Survey & Population Data, Health Systems, Sociological Approaches to Health. Comparative Studies of Health Care Systems, Optometry in a Multi-disciplinary Health Care System,Quality Assurance in Health Care, Roles & Responsibilities of Community Health Optometrists.

Module V:

- Demography & Epidemiology of Occupational Eye Disease & Injuries.
- Communicable & Non-communicable Eye Diseases: Modes of Disease Transmission.
- Health Problems in India: Types, Causes, Management.
- Social Issues & Optometric Involvement.

- Law & Ethics in Optometry.

Projects:

- Vision 2020 Epidemiological Data Analysis.
- Presentation on Role of NPCB (National Programme for Control of Blindness) and IAPB (International Agency for the Prevention of Blindness).

Suggested readings:

1. GVS Murthy, S K Gupta, D Bachani: The principles and practice of community Ophthalmology, National programme for control of blindness, New Delhi, 2002
2. Newcomb RD, Jolley JL: Public Health and Community Optometry, Charles C Thomas Publisher, Illinois, 1980
3. K Park: Park's Text Book of Preventive and Social Medicine, 19th edition, Banarsidas Bhanot publishers, Jabalpur, 2007
4. MC Gupta, Mahajan BK, Murthy GVS, 3rd edition. Text Book of Community Medicine, Jaypee Brothers, New Delhi, 2002
5. Epidemiology of eye diseases: Johnson and Gordon

INTRODUCTION TO LASER TECHNOLOGY

Subject Name	Code	Type	T + P + Pj	Credits
Introduction to LASER Technology	CUTM1963	Theory + Project	1+0+2	3

Course Objective:

- Understand the fundamental principles and concepts of lasers.
- Explore the diverse applications of lasers in various fields.
- Develop an appreciation for the practical utility of laser technology.
- Grasp laser fundamentals with minimal reliance on complex mathematical equations

Course Outcome:

After completion of this course the students will be able to:

COs	Statements	COs with POs and PSOs Mapping
CO1	Gain knowledge for applications of LASER in specific fields of their interest.	PO1,PO13,PSO1
CO2	Identify common issues with LASER systems and perform basic troubleshooting.	PO2,PO10,PSO1
CO3	Demonstrate critical thinking abilities and problem solving skills in laser procedure	PO5,PO6,PSO1
CO4	Develop skills in performing LASER procedures in any ophthalmic conditions.	PO3,PO11,PSO1
CO5	Evaluate the importance of proper usage, protective measures, and compliance with regulations.	PO6,PO8,PSO3

Course Outline

Module: I

Overview of Lasers: History, Types and Applications of Lasers; Nature of Light: Corpuscular Theory, Wave Theory, Electromagnetic Spectrum, Quantum nature of light, Dual nature of nature, De Broglie's hypothesis, wavelength associated with particle, momentum of photon, Energy-mass relation, Momentum of photon. Mass of photon.

Module: II

Principle of Laser action: Population inversion, metastable states, gain medium, Pumping mechanisms, feedback mechanism, threshold condition for laser beam generation. Types of Lasers: Three- level and Four-level Lasers, Solid, Liquid and Gas Lasers.

Module: III

Characteristics of LASER: Monochromaticity, Spatial & temporal coherence, temporal

coherence & monochromaticity relation, connection between spatial coherence and directionality, rightness, Focus ability, ultra-short pulse generation. Peak Power, Average Power, Duty Cycle in Pulsed Lasers.

Module :IV

Applications of LASER: General Applications of Lasers including Industry, Defense, Medicine, Entertainment etc.

Module :V

Brief description of Ruby, He-Ne, Nd: YAG, Excimer Laser, Carbon Dioxide Lasers, Semiconductor Lasers. X-Ray Lasers, Free-electron Lasers. Fiber Lasers.

Project:

1. Recent application of LASER technology
2. Different types of LASERS used in industry focusing majorly on ophthalmic practice.

Suggested readings:

1. Laser Principles, Types & Applications: K R Nambiar, New Age International, 2004.
2. Lasers: Theory and Applications: A K Ghatak and K Thyagarajan, McMillan, 2003.

ORTHOPTICS AND VISION THERAPY

Subject Name	Code	Type	T + P + Pj	Credits
Orthoptics and Vision Therapy	CUTM4272	Theory + Practical	2+1+0	3

Course Objective:

- Gain in-depth knowledge of orthoptics and its clinical applications.
- Understand various vision therapy procedures and their methodologies.
- Develop skills through hands-on clinical exposure and case studies.
- Apply orthoptic principles to diagnose and manage binocular vision disorders.

Course Outcome:

After completion of this course, the students will be able to:

CO	STATEMENT	COs with PO, PSO Mapping
CO1	Understand in detail how a vision therapy works and what are the clinical practice in it.	PO1,PO13,PSO1
CO2	Interpret orthoptic functions of the human eye through case discussions and practical exposures.	PO2,PO10,PSO1
CO3	Organize an orthoptics and vision therapy session for patients having binocular vision defects.	PO3,PO4,PSO1
CO4	Evaluate the ethical considerations and potential benefits of collaborating with professionals from both orthoptics and optometric fields.	PO6,PO8,PSO3
CO5	Develop and design sessions for individual binocular vision defects	PO5,PO11,PSO1

Course Outline:

Module I:

Non-strabismic Binocular Vision Anomalies, Convergence Insufficiency, Convergence Excess,Fusional Vergence Dysfunction.

Module II:

Functional Ocular Motor Dysfunction, Disorders of Accommodation, Diagnostic Techniques for Non-Strabismic Binocular Vision Disorders, Primary Care Diagnosis and Vision Therapy for Non-Strabismic Binocular Vision Disorders.

Module III:

Esodeviations, Exodeviations, Mechanically
Restrictive Strabismus.

Module IV:

Paralytic Strabismus, Horizontal Gaze Disturbances,Vertical Gaze Disturbances, Ocular Myasthenia Gravis.

Module V:

Amblyopia, Diagnostic Techniques for Gaze Disturbances and Amblyopia,Vision Therapy for Strabismic and Non-Strabismic Disorders.

Practice:

1. RAF Ruler Test: NPA, NPC
2. PBCT, Modified Krimsky Test
3. Visual Gaze Evaluation

Suggested readings:

1. Griffin, John R. Binocular Anomalies: Diagnosis and Vision Therapy. 4th ed. Boston:Butterworth-Heinemann, 2002. Press,
2. Leonard J., ed. Applied Concepts in Vision Therapy with Accompanying Disk. St.Louis: Mosby, 1997
3. Scheiman, Mitchell and Wick, Bruce. Clinical Management of Binocular Vision. 2nded. Philadelphia: Lippincott, Williams & Wilkins, 2002.
4. Von Noorden, Gunter K. Binocular Vision and Ocular Motility: Theory andManagement of Strabismus. 6th ed. St. Louis: Mosby, 2001.
5. Erik M. Weissberg: Essentials of clinical binocular vision.

ADVANCED CONTACT LENS PRACTICE – I

Subject Name	Code	Type	T + P + Pj	Credits
Advanced contact lens practice -I	CUTM1966	Theory + Practical	2+2+0	4

Course Objective:

- Develop a comprehensive understanding of foundational contact lens practices.
- Explore the latest trends and advancements in the contact lens industry.
- Enhance skills in selecting and fitting contact lenses for diverse patient needs.
- Understand the principles of advanced contact lens care and management.

Course Outcome:

After completion of this course the students will be able to:

CO	STATEMENT	COs with PO, PSO 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

Course Outline:

Module I:

Anatomy and Physiology of the Cornea and Related Structures, Tears and Contact Lenses, Latest Trends in Contact Lens Materials & Manufacturing Methods.

Module II:

Optics of Contact Lens & Design, Rigid Gas Permeable (RGP) Corneal Lens Fitting, Soft Contact Lens Fitting, Toric Contact Lens Fitting.

Module III:

Microbiology Related to Contact Lenses, Lens Care and Maintenance, Lens Care Regimen, Clinical Instrumentation in Contact Lens Practice.

Module IV:

Contact Lens Standards, Lens Verification and Modification: Soft and Rigid, Contact Lens Completions.

Module V:

Special Types of Contact Lenses: Diagnosis, Surgery, Protective,Therapeutic, Sports, Partially Sighted, Practice Management in Contact Lens, Researches in Contact Lens.

Practice:

1. Specialty CL Fitting: Prosthetic, Scleral.
2. Handling Lens Care Regimen.
3. Dispensing Final CL Rx.

Suggested readings:

1. IACLE Modules- 1- 10
2. Contact Lens Practice- Nathan Efron. Elsevier Sciences. Third Edition
3. Contact Lenses- Philips Stone
4. Fitting guide for Rigid & soft contact lens: A practical Approach: Slatt& Stein

PEDIATRIC OPTOMETRY AND BINOCULAR VISION I

Subject Name	Code	Type	T + P + Pj	Credits
Pediatric Optometry and binocular Vision I	CUTM4269	Theory + Practical	2+2+0	4

Course Objective:

- Gain in-depth knowledge of pediatric optometric care and development.
- Understand the assessment and management of binocular vision functions.
- Develop skills to address visual needs in pediatric populations.
- Apply binocular vision principles to diagnose and treat vision disorders in children

Course Outcome:

After completion of this course the students will be able to:

CO	STATEMENT	COs with PO, PSO Mapping
CO1	**U**nderstand how to deal with pediatric patients as a part of specialization.	PO1,PO4,PO6,PSO1
CO2	Interpret binocular vision functions in humans in details.	PO2,PO10,PSO1
CO3	Apply the knowledge of pediatric optometry in early detection of refractive errors in children.	PO5,PO10,PSO1
CO4	Analyze case studies involving pediatric patients with complex visual challenges**.**	PO5,PO11,PSO2
CO5	Create awareness among people about eye diseases in children	PO7,PO8,PSO3

Course Outline:

Module I:

Assessment of Paediatric Vision Refractive Status, Binocular Vision & Ocular Motility in Children,Clinical Evaluation of Efficient Visual Function, Strabismus & Amblyopia Evaluation.

Module II:

Assessment & Management of Special Needs Patients, including Genetic Conditions, Developmental Disabilities, & Traumatic Brain Injury, Diagnosis of Pediatric Eye Movement Disorders,Compensatory Treatment & Remedial Therapy for Refractive Errors & Strabismus, Amblyopia & Its Implications on the Learning Process.

Module III:

Clinical Practice in Amblyopia, Dyslexia & Learning Disabilities, The Relation Between Learning & Vision, Treatment & Management of Learning Disabilities in Children, Pediatric Contact Lens Practice.

Module IV:

Pediatric Ocular Diseases, Dispensing for the Child Patient, Non-strabismic Binocular Vision Anomalies: Convergence Insufficiency, Convergence Excess, Fusional Vergence Dysfunction, Functional Ocular Motor Dysfunction & Disorders of Accommodation.

Module V:

Esodeviations, Exodeviations, Mechanically Restrictive Strabismus, Paralytic Strabismus,Horizontal & Vertical Gaze Disturbances, Ocular Myasthenia Gravis,Diagnostic Techniques in Paediatric Ophthalmology.

Practice:

1. Pediatric Dispensing: Glasses and CL
2. Performing Accommodative Tests.

Suggested readings:

1. Clinical management of binocular vision Mitchell Scheimann and Bruce Wick. 4th Edition. Lippincott Wiliams& Wilkins. 2014
2. Applied concepts in vision therapy: Leonard Press
3. Pediatric optometry: Harvey Gilmartin Butterworth-Heinemann; 1 edition.2004
4. Pickwells Binocular Vision Anomalies- Bruce JW Evans. 5th Edition
5. Binocular Vision & Ocular Motility- Gunter V. K. Noorden- Sixth Edition

PEDIATRIC OPTOMETRY AND BINOCULAR VISION II

Subject Name	Code	Type	T + P + Pj	Credits
Pediatric Optometry and Binocular Vision II	CUTM4270	Theory + Practical	2+2+0	4

Course Objective:

- Acquire a comprehensive understanding of pediatric optometric care.
- Learn to assess and manage binocular vision disorders in children.
- Develop skills to address age-specific visual needs and challenges.
- Apply principles of binocular vision to improve pediatric visual outcomes.

Course Outcome:

After completion of this course the students will be able to:

CO	STATEMENT	COs with PO, PSO Mapping
CO1	Understand how to deal with pediatric patients as a part of specialization	PO1,PO4,PO6,PO7,PO11, PSO1,PSO3
CO2	Interpret binocular vision functions in humans in details	PO1,PO2,PO5,PO7,PO8,PSO1
CO3	Apply the knowledge of pediatric optometry in early detection of refractive errors in children**.**	PO1,PO5,PO6,PO7,PO11, PSO1,PSO3
CO4	Analyze case studies involving pediatric patients with complex visual challenges	PO2,PO5,PO6,PO8,PO11, PSO1,PSO2,PSO3
CO5	Create awareness among people about squint and binocular vision defects in children	PO4,PO6,PO7,PO8,PO13, PSO1,PSO3

Course Outline:

Module I:

Introduction to Vision Therapy: General Concepts, Latest Techniques, Office & Home Therapies, Training with Vision Therapy Instruments, Practice Management in Vision Therapy, Instrumentation Used in Vision Therapy, Non-Strabismic Binocular Vision Anomalies.

Practice:

Vision Therapy Procedures: Brock String Test, Pencil Push-up Test.

Module II:

Computer Vision Syndrome (CVS) Diagnosis and Management, Perception and Perceptual Anomalies, Visual Information Processing Disorders and Therapy, Neuro-Optometric Rehabilitation, Post-Trauma Vision Syndrome and Therapy, Visual Midline Shift Syndrome and Therapy.

Practice:

Performing Cycloplegic Retinoscopy.

Module III:

Learning Disorders and Therapy, Special Clinical Conditions, Acquired Brain Injury and Therapy, Developmental Disabilities Therapy, Motor Disabilities Therapy, Behavioral Disorders and Therapy. Amblyopia Therapy in Infants.

Practice:

1. Amblyopia Therapy in infants
2. Performing cycloplegic retinoscopy
3. Vision therapy procedures: Brock string Test, Pencil Push-up Test

Suggested readings:

1. Clinical management of binocular vision Mitchell Scheimann and Bruce Wick. 4th Edition. LipincottWiliams& Wilkins. 2014
2. Applied concepts in vision therapy: Leonard Press. OEPF
3. Pediatric optometry: Harvey Gilmartin Butterworth-Heinemann; 1st edition.2004
4. Pickwells Binocular Vision Anomalies- Bruce JW Evans. 5th Edition

ADVANCE CONTACT LENS PRACTICE II

Subject Name	Code	Type	T + P + Pj	Credits
Advance contact lens practice II	CUTM1971	Theory + Practical	2+2+0	4

Course Objective:

- Understand the foundational principles of contact lens practice.
- Explore the latest trends and technological advancements in contact lenses.
- Develop expertise in fitting and managing various types of contact lenses.
- Apply contemporary industry practices to improve patient outcomes in contact lens wear.

Course Outcome:

After completion of this course the students will be able to:

CO	STATEMENT	COs with PO, PSO Mapping
CO1	Understand the advanced skills in fitting contact lens.	PO1,PO3,PO5,PO6,PO10,PSO1
CO2	Identify and manage the adverse effects of contact lens	PO2,PO5,PO6,PO8,PO11,PSO1,PSO3
CO3	Apply advanced techniques for selecting and fitting specialized contact lenses to address complex refractive errors	PO1,PO3,PO5,PO7,PO10,PSO1,PSO2
CO4	Evaluate the contact lens design for various kinds of patients	PO2,PO5,PO8,PO11,PSO1,PSO2
CO5	Create awareness about advantages of contact lenses	PO4,PO6,PO7,PO8,PO12,PSO1,PSO2

Course Outline:

Module: I

Extended and Continuous wear Lenses, Scleral Contact lenses.

Module: II

Bifocal and Multifocal contact lenses, Orthokeratology

Module: III

Keratoconus, Post keratoplasty contact lens fitting, Post refractive surgery contact lens fitting

Module: IV

Pediatric contact lens fitting, Cosmetic and prosthetic contact lens fitting, Contact lens for abnormal ocular conditions

Module: V

Contact lens and Myopia control, Legal issues and contact lenses, Ocular Prosthesis

Practice:

1. TBUT, Tear meniscus height measurement
2. Schirmer I and II Test.
3. Insertion and Removal techniques of CL: RGP, Soft CL, Scleral, Prosthetic CL
4. The modules can be taught in a practical + Theory mixed approach

Suggested readings:

1. IACLE Modules- 1- 10
2. Contact Lens Practice- Nathan Efron. Elsevier Sciences. Third Edition
3. Contact Lenses- Philips Stone
4. Fitting guide for Rigid & soft contact lens: A practical Approach: Slatt&Stein

OCULAR DISEASES & THERAPEUTICS

Subject Name	Code	Type	T + P + Pj	Credits
Ocular diseases & Therapeutics	CUTM1972	Theory + Project	2+0+1	3

Course Objective:

- Gain in-depth knowledge of various ocular diseases and their clinical outcomes.

- Understand the management strategies for common and complex ocular conditions.
- Explore pharmacological agents used in ophthalmology, including their indications.
- Study drug interactions and their implications in ophthalmic treatment plans.

Course Outcome:

After completion of this course the students will be able to

CO	STATEMENT	COs with PO, PSO Mapping
CO1	Understand the etiology, epidemiology, symptoms, signs, course squeal of ocular diseases**.**	PO1,PO5,PO8,PO13,PSO 1,PSO2
CO2	Implement diagnostic approach, and management of ocular diseases.	PO1,PO2,PO5,PO6,PO10 ,PSO1,PSO3
CO3	Analyze treatment options for specific ocular diseases, considering factors like patient's demographics and disease severity.	PO1,PO2,PO5,PO8,PO11 ,PSO1,PSO2
CO4	Evaluate many ocular eye diseases.	PO2,PO5,PO8,PO11,PO1 3,PSO1,PSO2
CO5	Create awareness among people for many infectious eye diseases and its treatment	PO4,PO6,PO7,PO8,PO12 ,PSO1,PSO3

Course Outline:

Module I:

Basic Principles of Pharmacokinetics & Pharmacodynamics, Commonly Used Ocular Drugs: Mechanism, Indications, Contraindications, Drug Dosage, General Pharmacology: Basic Principles, Mechanisms of Action and Side Effects of Anti-inflammatory, Autonomic, Cardiovascular, Respiratory, CNS, Anti-diabetic, Chemotherapeutic, Immune System, and GI Drugs,Principles and Application of Ocular Pharmacology.

Module II:

Diagnosis, Management & Therapy of Anterior Ocular Surface Disease (Infection & Inflammation of the Conjunctiva, Cornea, Eyelids, Ocular Adnexa), Inflammatory Disease of the Uvea, Lacrimal System, Glaucoma,Medications Used in the Treatment of Ocular Disease,Classification of Ophthalmic Drugs (Parasympathomimetic, Parasympatholytic, Sympathomimetic, Sympatholytic, Antibiotics, Anti-inflammatory).

Module III:

Posterior Segment: Congenital & Acquired Retinal Disease, Diabetic Retinopathy, Age-related Maculopathy, Ocular Injuries, Trauma, Neuro-Ophthalmic Disorders,Ocular Effects of Systemic Medications.

Module IV:

Co-management of Systemic and Ocular Disease, Ocular Pharmacology: Mode of Administration, Management of Allergic Eye Disease, Lid Margin Disease, Dry Eyes, Corneal Injuries, Medical Management of Glaucoma, Contraindications and Adverse Effects,Role of Pharmacology in Clinical Optometry,Diagnostic Drugs in Optometry.

Module V:

Newer Trends in Ophthalmic Drugs, Drug Resistance and Proliferation of Associated Risk Factors: Fluoroquinolones, Nanoparticles Used as Binding Agents for Drug Delivery in Ophthalmic Practice,Case Studies in Ocular Pharmacology.

Project:

- Drug Abuse History in Ophthalmic Practice.
- Nanoparticles Used as Binding Agents for Drug Delivery in Ophthalmic Practice.
- Drug Resistance and Proliferation of Associated Risk Factors: Fluoroquinolones.

Suggested readings:

1. Ocular Disease: Clinical Ophthalmology: Jack J Kanski
2. Ophthalmology- Yanoff & Duker. Elsevier Saunders, 2014
3. T J Zimmerman, K S Kooner: Text Book of Ocular Pharmacology, Lippincott- Raven, 1997
4. K D Tripathi: Essentials of Medical Pharmacology. 5th edition, Jaypee, New Delhi, 2004
5. Ashok Garg: Manual of Ocular Therapeutics, Jaypee, New Delhi, 1996

6. Advanced ophthalmic diagnostic &Therapeutics – 1992 , Susan C.Benes, Jaypee publishers.

NEURO OPTOMETRY

Subject Name	Code	Type	T + P + Pj	Credits
Neuro Optometry	CUTM1973	Theory + Practical	2+1+0	3

Course Objective:

- Understand the key factors affecting visual functioning in clinical practice.
- Learn how to assess and diagnose visual function disorders.
- Explore the relationship between visual functioning and clinical assessment techniques.
- Develop skills in evaluating and managing visual function in diverse patient populations.

Course Outcome:

After completion of this course the students will be able to:

CO	STATEMENT	COs with PO, PSO Mapping
CO1	Construct various care for neurological problems	PO1,PO3,PO5,PO6,PO8, PSI1,PSO3
CO2	Equip the students with a thorough knowledge of the neurological functioning of the eyes.	PO1,PO5,PO7,PSO1,PSO 2
CO3	Generate neurological findings	PO2,PO5,PO6,PO10,PSO 1,PSO2
CO4	Analyze the brainstem mobility Evaluate neuro optics related problems	PO2,PO5,PO8,PO11,PSO 1
CO5	Evaluate neuro optics related problems	PO2,PO5,PO6,PO8,PO11 ,PSO1,PSO2

Course Outline:

Module I: Pupils and Brainstem Motility, Cranial Nerve Disorders: CN II, III, IV, V, VI.

Module II:

Papilledema, Anterior Ischemic Optic Neuropathy (AAION and NAION)

Module III:

Migraine and Its Ocular Manifestations,

Module IV

Nystagmus, Myasthenia Gravis and Ocular Manifestations.

Module V

Optic Neuritis, Neuroimaging in Neuro-Ophthalmology.

Practice:

1. Pupillary examination: RAPD evaluation
2. Fundus photography: Optic disc and pan retina evaluation
3. Ocular motility testing
4. OKN Drum test.

Suggested readings:

1. Jack J. Kanski Clinical Ophthalmology: A Systematic Approach, 8 th edition, Butterworth – Heinemann.
2. Stephen J. Miller: Parsons Diseases of the Eye, 18 th edition, Churchill Livingstone.

GERIATRIC OPTOMETRY AND LOW VISION

Subject Name	Code	Type	T + P+ Pj	Credits
GERIATRIC OPTOMETRY AND LOW VISION	CUTM4267	Theory and practical	3+0+1	4

Course Objective:

- Understand the causes and consequences of low vision, including functional and psychosocial impacts.
- Learn to identify the most suitable low vision and assistive devices for specific conditions.

- Develop skills to optimize residual visual abilities in visually impaired individuals.
- Gain theoretical knowledge and clinical experience in low vision care and rehabilitation.

Course Outcome:

After completion of this course the students will be able to:

CO	STATEMENT	COs with PO, PSO 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,PSO2
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

Course Outline:

Module I:

The Epidemiology of Vision Impairment Vision Impairment in the pediatric population

Ocular Diseases : Age – Related Cataract, Glaucoma ARMD Diabetic retinopathy Corneal Disorders Ocular Trauma, Sensory Neuro-ophthalmology and Vision Impairment Refractive Disorders

Module II:

Vision and Psychophysics, Visual Functioning in Pediatric Populations with Low Vision Perceptual correlates of Optical Disorders, Functional aspects of Neural Visual Disorders of the eye and Brain Visual Disorders and Performance of specific Tasks

Module III:

Children with Multiple Impairments Dual Vision and Hearing Impairment Diabetes Mellitus and Vision Impairment,Vision Problems associated with Multiple Sclerosis Vision Impairment related to Acquired Brain Injury Vision and Dementia, Low Vision and HIV infection

Module IV:

Towards Universal Design Indian Disabilities act Children's Environments Environments of Older people Outdoor environments. Lighting to enhance visual capabilities Signage and way finding

Module V:

The Role of psychosocial Factors in adaptation to vision Impairment and Habilitation outcomes for Children and Youth. The Role of psychosocial Factors in adaptation to vision Impairment and Habilitation outcomes for Adults and Older adults. Social support and adjustment to vision Impairment across the life span The person – Environment perspective of vision impairment Associated Depression, Disability and rehabilitation. Methodological strategies and issues in social research on vision Impairment and rehabilitation.

Project

- The Role of psychosocial Factors in adaptation to vision Impairment and Habilitation outcomes for Children and Youth
- The Role of psychosocial Factors in adaptation to vision Impairment and Habilitation outcomes for Adults and Older adults
- Social support and adjustment to vision Impairment across the life span
- The person – Environment perspective of vision impairment
- Associated Depression, Disability and rehabilitation .
- Methodological strategies and issues in social research on vision Impairment and rehabilitation

Suggested readings:

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

LASER TECHNOLOGY

Subject Name	Code	Type	T + P + Pj	Credits
LASER TECHNOLOGY	CUTM4271	Theory + Project	3+0+1	4

Course Objective:

- Gain a comprehensive understanding of LASER technologies in ophthalmic applications.
- Learn about the use of LASERs in managing anterior segment disorders and refractive surgeries.
- Explore the latest advancements in LASER interventions and their clinical applications.
- Develop the ability to critically analyze and apply LASER techniques to enhance patient outcomes in ophthalmology.

Course Outcome:

After completion of this course the students will be able to:

CO	STATEMENT	COs with PO, PSO Mapping
CO1	Understand and Recognize LASER Applications	PO1,PO5,PO6,PO8
CO2	Apply LASER Techniques in Clinical Scenarios	PO1,PO2,PO3,PSO1,PSO3
CO3	Analyze and Evaluate LASER Technologies	PO1,PO2,PO5PO10,PSO1
CO4	Develop Practical Skills in LASER Use	PO2,PO3,PO5.PSO1,PSO3
CO5	Critically Assess and Synthesize Information on LASER Innovations	PO1,PO2,PO5,PO12,PSO2

Course Outline:

Module I:

Anatomy and Physiology of the Crystalline Lens, Cornea, Vitreous, and Retina, Basic Pathology of the Crystalline Lens: Cataractogenesis, Lens Ectopia, Congenital Lens Anomalies, Degenerative Changes in the Cornea and Corneal Ectasia.

Project:

- Case Presentation on Proliferative Retinopathy and Panretinal Photocoagulation (PRP) in Retinal Pathology.

Module II:

Advances in Cataract Surgery: LenSx, Femtosecond LASER, and other innovations, Introduction to Refractive Surgeries: PRK, LASIK, Epi-LASIK, LASEK, and SMILE, Refractive Surgery Work-up: Aberrometry and Pentacam.

Project:

- Case Presentation on LenSx Application in Cataract Surgery.
- Writing Articles on the Latest Inventions in LASER Technologies for Refractive Surgery.

Module III:

Management of Post-Cataract Completions: Nd: YAG LASER Capsulotomy and other treatments, Completions Post LASER Refractive Surgery and Re-LASIK Procedures.

Project:

- Case Presentation on YAG LASER Capsulotomy in Post-Cataract Management.
- Case Presentation on LASIK, PRK, and SMILE Surgeries.

Module IV:

LASER Treatments in Glaucoma: Iridotomy, Trabeculoplasty, Cyclodestruction, LASER Applications in the Posterior Segment: Retinal Reattachment, Photocoagulation, Measuring Retinal Blood Flow.

Project:

- Case Presentation on LASER Treatment of Glaucoma.
- Use of Focal and Grid LASER Techniques: A Case-Based Approach in Retina, including Completions Management.

Module V

Overview of LASER Applications Across Cataract, Glaucoma, and Refractive Treatments, Comparative Analysis of LASER Techniques and Advanced Techniques in Ocular Management, Future Trends and Research in Ocular LASER Treatments.

Project:

- Comparative Case Analysis of LASER Techniques in Cataract, Glaucoma, and Refractive Surgeries.

SPECIALTY CLINIC

Subject Name	Code	Type	T + P + Pj	Credits
Specialty Clinic	CUTM1974	Practical	0+10+0	10

Course Objective:

- To apply theoretical knowledge gained during the academic coursework to real-world optometry scenarios.
- To develop skills in data collection techniques, data analysis, and interpretation, which are essential for evidence-based practice in optometry
- To present findings and results in a clear, concise, and professional manner.
- To develop effective communication skills through oral presentations, written reports, and visual aids.

Course Outcome:

After completion of this course the students will be able to:

CO	STATEMENT	COs with PO, PSO 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

Course Outline:

Clinical postings in Community Diagnostic Centre/hospitals/clinical set-up (for a maximum period of 2 months in the entire 4th semester) to get hands-on experience of special diagnostic clinics and also for carry forwarding the dissertation project under the guidance of senior Optometrist/Ophthalmologist and taking part in community outreach camps. Handling special instruments: OCT, A-scan, B-scan.

DISSERTATION

Subject Name	Code	Type	T + P + Pj	Credits
Dissertation	CUTM4273	Project	0+0+10	10

Course Objective:

- To contribute to the advancement of knowledge in the field of optometry by conducting original research or exploring innovative approaches in vision science, ocular health, or clinical optometry.
- To apply theoretical knowledge gained during the academic coursework to real-world optometry scenarios.
- To develop skills in data collection techniques, data analysis, and interpretation, which are essential for evidence-based practice in optometry.
- To present findings and results in a clear, concise, and professional manner.

Course Outcome:

After completion of this course the students will be able to:

CO	STATEMENT	COs with PO, PSO Mapping
CO1	Understand the students will be doing a research project under the guidance of a supervisor (who could be optometrists/ ophthalmologist).	PO2,PO5,PO12,PSO1,PSO2
CO2	Apply principles of research design to the question, and select an appropriate methodology;	PO2,PO5,PO6,PO12,PSO2
CO3	**E**xperience of doing research in systematic approach	PO2,PO5,PO12,PSO2
CO4	Identify the gaps in the literature, identifying the research question, writing up the research proposal, data collection, data analysis, thesis writing	PO2,PO5,PO7,PO12,PSO2
CO5	Create a presentation on the project	PO7,PO8,PO12,PSO2

Course Outline:

Team of students will be doing a research project under the guidance of a supervisor (who could be optometrists/ ophthalmologist). Student will get the experience of doing a research in systematic approach – identifying the primary question, literature search, identifying the gaps in the literature, identifying the research question, writing up the research proposal, data collection, data analysis, thesis writing and presentation.