

PROGRAM OUTCOMES (PO):

1. Optometry knowledge: Show mastery of basic medical-science subjects needed to work as a health care professional and to deliver patient care that considers socio-economic and cultural factors
2. Problem analysis: Identify, formulate, review research literature, and analyse critical problems reaching substantiated conclusions
3. Ethics And Accountability: Follows ethics code set by the professional body/faculty/department and keeps proper relationships and boundaries with patients and caregivers
4. Communication: Communicates effectively with the patient, interprofessional team members, and other stakeholders using patient-centered principles that address physical, social, cultural or other barriers to communication.
5. Professional Responsibility: Practices as an autonomous professional, exercising their own professional judgment and demonstrates a commitment to their patients, public, and profession.
6. Self-Awareness And Emotional Intelligence: Demonstrate the importance of self-awareness and self-reflection and be able to reflect critically on personal practice in order to be able to improve it.
7. Research Methodology: Familiar with basic health sciences research methods and demonstrates the process of evidence-based practice.
8. Lifelong Learning: Committed to continuous improvement of skills and knowledge.
9. Information Literacy: Graduates should be able to assess, evaluate and apply relevant research findings, clinical guidelines and other sources of evidence to inform their practice and decision making.
10. Clinical Competency: Graduates should possess the necessary skills to perform clinical procedures and techniques relevant to their chosen field, such as patient assessment, diagnostic testing, therapeutic interventions and patient education.
11. Leadership : Collaborates with inter professional team, demonstrates flexibility within team and works effectively with inter professional team, and other stakeholders to manage positive professional relationships.

PROGRAM SPECIFIC OUTCOMES (PSO)

Bachelor of science in Optometry:

The Course aims at carving out graduates in Optometry who will be well versed in

- Helping the Ophthalmologist in his practice

- Do refraction, contact lens fitting and orthoptic assessment independently
- Involve and do special investigative procedures
- To operate and maintain Ophthalmic instruments
- To maintain Ophthalmic theatre and Operating Instruments
- To run and establish an Optical shop

COURSE OUTCOMES(CO) :

CO 1.1 GENERAL ANATOMY

- Acquire a comprehensive understanding of anatomical terminology, structures, and systems within the human body.
- Students should understand the functional relationships between different anatomical structures and how they contribute to overall human function and health.
- Students should be able to apply their knowledge of general anatomy to clinical scenarios encountered in optometry practice, such as understanding the effects of systemic conditions on ocular health or recognizing anatomical variations that may impact vision or eye health.
- Students should understand how general anatomy relates to optometric practice, including implications for patient assessment, diagnosis, and treatment planning.

CO 1.2 OCULAR ANATOMY

- Determine Ocular Structures: to recognize and explain the anatomical features of the cornea, lens, retina, choroid, sclera, and optic nerve, among other important components of the eye.
- Recognize Ocular Functions: Learn how each ocular structure works and how it contributes to the overall visual process.
- Connect Structure to Function: Recognize how various eye parts affect functions like accommodation, refraction, and image production. Gain an understanding of the relationship between ocular anatomy and visual function.
- Use Anatomical vocabulary: To effectively communicate about ocular anatomy, become proficient in the use of accurate and suitable anatomical vocabulary.

- Recognize Developmental Anatomy: Learn about the ways in which developmental processes aid in the construction of the eye and the embryological development of ocular tissues.

CO 1.3 GENERAL PHYSIOLOGY

- Demonstrate a thorough understanding of human physiology, encompassing major organ systems such as cardiovascular, respiratory, nervous, endocrine, digestive, renal, and musculoskeletal systems.
- Integrate physiological concepts to understand body function as a whole, including homeostasis and feedback mechanisms.
- Understand common physiological disorders, their causes, symptoms, diagnostic tests, and treatment options.
- Critically evaluate physiological data, identify problems, and propose solutions or interventions, involving case studies and evidence-based recommendations.

CO 1.4 OCULAR PHYSIOLOGY

- Determine Ocular Structures: to recognize and explain the anatomical features of the cornea, lens, retina, choroid, sclera, and optic nerve, among other important components of the eye.
- Recognize Ocular Functions: Learn how each ocular structure works and how it contributes to the overall visual process. Know the physiological mechanisms of vision, including accommodation, convergence, and photoreceptors including the staining, microscopic observations, use of aseptic procedures and safety measures in the lab.
- Connect Structure to Function: Recognize how various eye parts affect functions like accommodation, refraction, and image production. Gain an understanding of the relationship between ocular anatomy and visual function.
- Integration of Neural pathways : Understand the neurological connections that connect the retina to the visual cortex in the brain.

- Learn basic skills for measuring and evaluating ocular functions like visual acuity, intraocular pressure, and pupillary responses.

CO 1.5 PHYSICAL OPTICS AND GEOMETRICAL OPTICS

- Analyze and interpret the relationship between amplitude and intensity in the context of light waves, connecting theoretical concepts with practical applications.
- Apply knowledge of amplitude and intensity to explain optical phenomena, such as interference, diffraction, and the behaviour of polarized light
- Demonstrate proficiency in manipulating the amplitude of light waves and predicting resulting changes in intensity through theoretical calculations and practical experiments.
- Formulate and solve problems related to amplitude and intensity in diverse optical scenarios, fostering critical thinking and practical application of acquired knowledge.
- Knowledge of the various components of the eye involved in geometric optics such as the cornea lens and retina
- Being aware of how the laws of light refraction and reflection are used in the eye and how it relate to an eye's optics.
- Proficiency in determining and analysing the refractive powers of the eye coupled with the ability to perform calculations and measurements essential for optical power and lens prescriptions.
- Understanding of optical aberrations in the eye and how they affect our vision.

CO 2.1 BIOCHEMISTRY

- Understanding of carbohydrate chemistry, metabolism and clinical conditions associated with carbohydrate metabolism
- Comprehensive understanding of chemistry and functions of protein, plasma proteins and metabolism of amino acids
- Knowledge of lipid chemistry, classification, metabolism and clinical conditions associated with lipid metabolism especially related to eye.
- Comprehensive understanding of ocular biochemistry including the chemical composition, metabolism and nutrient uptake in different part of eye
- Knowledge of nutrition, balanced diet and role of nutrition in eye health

- Assess the significance of vitamins, minerals functions, and their deficiency disorders including vitamin A and its role in vision

CO 2.2 PATHOLOGY

- Describe the mechanism of cell death, the degeneration, cellular adaption, patterns of tissue response to cellular injury and repair and be able to correlate structural and functional alternations.
- Explain the Patho physiological processes which govern the maintenance the Homeostasis, Mechanism of their disturbance and morphological and clinical Manifestations associated with it.
- Describe the etiopathogenesis and morphological changes of common infections and neoplastic processes.
- Describe the pathological findings on common ocular diseases.

CO 2.3 PHARMACOLOGY

- Describe the pharmacokinetics and pharmacodynamics of commonly used ocular drugs
- Enumerate the drug delivery strategies in Ophthalmic drug use
- Describe the Toxicology of ocular therapeutic agents
- List the indications and contraindications of ocular drug
- State the diagnostic application of drugs in Ophthalmology

CO 2.4 MICROBIOLOGY

- Comprehensive understanding of various methods employed to eliminate or reduce microbial contamination in hospital settings, mainly in optometry department and also be equipped to assess and implement appropriate sterilization and disinfection strategies
- Comprehensive understanding of the antigen, antibodies, lymphoid structures, immunity, hypersensitivity, serological tests and autoimmune diseases of the eye.
- Comprehensive understanding of the types, source and routes of infection. Also, the understanding of clinically significant microorganisms and vectors, their pathogenic mechanisms, associated diseases, diagnosis, treatment and prophylaxis. Also contributing to effective healthcare practices and infectious disease management.
- Comprehensive understanding of the collection of specimens from eye, microbial organisms causing eye infection, their identification, and their role in infectious diseases, enabling them to apply diagnostic techniques and interpret results.

CO 2.5 CLINICAL EXAMINATION OF VISUAL SYSTEM AND INSTRUMENTS

- Identify and explain various ophthalmic instruments (keratometers, slit lamps, ophthalmoscopes, retinoscopes) used in eye care.
- Learn the principles and functions of each instrument, understanding their roles in supporting therapeutic and diagnostic operations.
- Recognize the significance of instrument calibration for maintaining measurement and diagnostic accuracy.
- Apply knowledge of ophthalmic instruments in clinical settings for specific diagnostic tests, therapeutic procedures, and routine eye exams..
- Comprehend the interaction between contemporary technology (digital imaging, electronic medical records) and ophthalmic devices, enhancing diagnostic performance and expediting patient treatment.
- Acquire skills in obtaining pertinent details about a patient's medical background, lifestyle, and visual symptoms that could impact their visual health.

CO 2.6 VISUAL OPTICS

- Understand refraction's impact on visual perception, explain dispersion, and conduct visual acuity tests.

- Identify and minimize common optical aberrations, interpret eyeglass prescriptions, and calculate lens power.
- Demonstrate knowledge of instruments like keratometers, lensmeters, and refractors in optometry
- Develop practical skills in visual optics, applying theoretical knowledge to patient assessments and prescriptions.

CO 2.7 OPTOMETRIC OPTICS

- Understand and apply the principles of lens design and manufacturing to prescribe and dispense appropriate ophthalmic lenses for patients.
- Develop skills in performing and interpreting calculations related to lens power, lens thickness, and lens selection.
- Understand and apply the principles of lens materials and coatings to optimize visual comfort and performance.
- Develop proficiency in performing and interpreting lensometry measurements and lens verification and stay updated on current research and advancements in the field of Optometric optics and its applications in clinical practice.

CO 3.1 EYE DISEASES

- Identifying and interpreting clinical signs and symptoms of each disease
- Deep understanding of the pathophysiological mechanisms underlying various ocular diseases, including their etiology, progression, and potential complications, allowing for informed clinical decision-making.
- Differentiating between each condition What diagnostic tests to be done and How to manage each
- To educate patients about their ocular conditions, treatment options, and the importance of compliance with prescribed therapies, empowering patients to actively participate in their eye care and optimize treatment outcomes.

CO 3.2 CONTACT LENSES

- Identify and describe various contact lens materials, including soft and rigid gas permeable types, highlighting features and applications
- Learn how to fit contact lenses considering base curve, diameter, and power, and evaluate the fit through diverse tests
- Understand the impact of contact lenses on ocular architecture and physiology, specifically on the cornea, tear film, and oxygen delivery
- Instruct patients on correct contact lens care, emphasizing cleanliness, maintenance, and the importance of regular check-ups, including the use of cleaning solutions
- Master emergency preparedness to effectively manage transfusion reactions and handle adverse donor responses Recognise and manage contact lens-related symptoms such as infections, allergies, and dry eye, while building problem-solving skills to address patient concerns

CO 3.3 LOW VISION AND DISPENSING OPTICS AND MECHANICAL OPTICS

- Identify and assess patients with low vision through appropriate clinical evaluation techniques and visual function tests.
- Demonstrate the selection, fitting, and evaluation of low vision aids (optical and non-optical) tailored to patient needs.
- Apply principles of dispensing optics in the design, fitting, and adjustment of ophthalmic lenses and frames.
- Interpret prescriptions and recommend appropriate ophthalmic devices, including specialized lenses and prisms, for vision enhancement.
- Integrate clinical knowledge to provide effective patient education, rehabilitation strategies, and interprofessional collaboration for low vision management.
- Utilize ethical and evidence-based approaches in low vision care and optical dispensing practices.

CO 3.4 BINOCULAR SINGLE VISION

- Describe the sensory and motor components of binocular single vision and their role in maintaining normal binocular function.

- Identify and classify anomalies of binocular vision such as heterophoria, heterotropia, suppression, and amblyopia.
 - Perform clinical tests to assess binocular vision status, including accommodation, vergence, and stereopsis evaluation.
 - Analyze the results of binocular vision assessments to diagnose and manage common binocular vision disorders.
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- Plan and implement appropriate vision therapy and orthoptic exercises for the management of binocular anomalies.
 - Integrate theoretical knowledge with clinical skills to provide holistic patient care in binocular vision management

CO 3.5 COMMUNITY OPTOMETRY

- Explain the principles of community health, public health, and primary eye care, and relate them to the role of optometrists in preventive and promotive eye health.
- Identify and analyze the major causes of blindness and visual impairment in the community, using epidemiological data and public health indicators.
- Demonstrate knowledge of vision screening methods and community-based eye care programs for different age groups (children, adults, elderly).
- Design and implement basic community outreach programs, including vision screening camps and health education initiatives, following ethical and professional standards.
- Collaborate effectively with multidisciplinary health teams and governmental/non-governmental organizations to plan and manage community eye care services.
- Advocate for eye health promotion and blindness prevention through education, awareness campaigns, and community participation.