

Bachelor of Science in Optometry (BS)

OPTO ZC111 Functional English and Communication

Grammar in usage - Tenses, Prepositions, Phrasal verbs; Communication - Process, Speaking, Listening, Reading, Memory, Self image; Comprehension, precis writing; Report writing.

OPTO ZC112 Basic Accountancy

Terms, Principles, Journals & Journalising, Ledger & Ledger posting, Trial balance, Cash Book, Sales & Purchases register, Bank reconciliation, Depreciation, Balance Sheet, Income and Sales tax.

OPTO ZC121 Mathematics I

Limits; sequences and series; continuity and differentiability of real valued functions of a real variable; integration; applications of derivatives and integrals; linear differential equations with constant coefficients; analytical geometry of conics.

OPTO ZC122 Public Relation

Definition - Universe, Phrases, Benefits; Methods - Press Relation, Printed work, spoken word, Radio and other Audio media, Film & TV, Research; In action - Employee public, Customer public, Government public, Community public; Specialised - Welfare agencies, Health agencies, Hospitals.

OPTO ZC123 Geometric Optics II

Stile Grawford Effect, Ametropia, Correction of Spherical Ametropia, Magnification, Presbyopia, Aphakia Spherometer & lens gauge, Critical Angle; spectrometer, Facimeter Refractive Index of lenses.

OPTO ZC131 Physical Optics

Nature of light, Interference, Diffraction, Polarization, Laser Optics, Spectrum, Scattering, Surface tension, Viscosity, Newton's rings, Grating, Resolving power of a telescope.

OPTO ZC132 Pharmacology

Mechanism of drug action, Dose response relationship, Tachyphylaxis, Pharmacokinetics of drug absorption, distribution, bio-transformation; Principles of ocular pharmacology, Optometric diagnostic drugs.

OPTO ZC133 Hospital Procedures

Administration, Bioengineering department, Medical Records, Reception, Computer, Appointment scheduling and Accounts, Laboratory, Funds, fluorescein angiography, Medical Photography, Correspondence, Stores.

OPTO ZC141 Basic Biochemistry I

Chemistry and functions of constituents of cells and tissues; Introduction to carbohydrates; Proteins; Lipids; Enzymes; Vitamins; Minerals.

OPTO ZC142 Ocular Anatomy

Anatomy & Embryology of Sclera, cornea, Uvea, retina & visual pathway.

OPTO ZC151 General Anatomy

Tissues of Body, General plan of Organ System, Cell structure and other Anatomical aspects of vital organs of body.

OPTO ZC152 Ocular Physiology

Protective mechanism in the eye, extraocular muscle, physiology, lens metabolism, Refractive Errors, Visual Acuity, color vision.

OPTO ZC161 General Physiology

Cell physiology, Blood, Digestion, Excretion, Endocrines, Reproduction circulation, Nervous system & special senses.

OPTO ZC162 Basic Biochemistry II

Hormones and metabolic regulation; Whole body metabolism; Ocular biochemistry - aspect of eye, viz., tears, cornea, lens, aqueous, vitreous, retina and pigment Rhodopsin; Biochemistry techniques; Clinical Biochemistry.

OPTO ZC171 Geometric Optics I

Photometry, Refraction through Spherical Surfaces, Aberration, Fibre Optics, Color theory, Lens power, Prismatic power, Gull strands, Schematic eye, Visual Acuity.

OPTO ZC172 Nutrition

Energy, Carbohydrates, Proteins, Fats, Minerals, Vitamins, Miscellaneous associated eye disorders.

OPTO ZC181 Remedial Mathematics

Algebra; Number systems; quadratic equations; progression; permutations and combinations; binomial theorem; vectors, matrices and determinants. Coordinate Geometry; Systems of coordinates; equation of a line and circle. Trigonometry: Trigonometric functions, heights and distances; trigonometric identities; sum and product formulae; properties of triangles.

OPTO ZC182 Principles of Lighting

Visual tasks, Synthesis of light, Additive and subtractive synthesis of color, light sources, illumination, lighting installation, photometry, Eye care & lighting.

OPTO ZC191 Remedial Biology

Living systems and their properties; major biological compounds; basic physiological processes; introduction to genetics; environment and evolution.

OPTO ZC192 Mathematics II

Heuristic; approach to manipulations with sets; language of logic; vectors and matrices, elementary applications; simplex methods for a linear programming problem; elementary probability and statistical tools for tests of significations; game theory; graphs and networks; applications to behavioural and managerial sciences.

OPTO ZC211 Computer Programming

Elementary computer organisation; introduction to Number Systems; Representation of integers, real numbers and characters on computers; concept of range and accuracy; Arithmetic overflow; Algorithms and algorithm development; The programming language PASCAL; Structured program development through stepwise refinement; procedures and functions; recursion; Data types in PASCAL; Algorithm Coding using another programming language FORTRAN.

OPTO ZC212 Medical Psychology

Definition, emotions & feelings, motivation, personality, normality & abnormality, Impact of eye diseases of patient, Rehabilitation of the blind.

OPTO ZC221 Optometric Optics I

Form of lenses, Base curves, lens tools & blanks, Cylindrical lenses, Spherocylinders, Ophthalmic prism, Determining lens power, Aberrations in Ophthalmic lenses, Absorptive lenses.

OPTO ZC222 Pathology & Microbiology

Inflammation & repair, infection, Neoplasia, Circulatory disturbances, Clinical pathology, Principles of cultivation of bacteria, sterilization and disinfection.

OPTO ZC231 Optometric Instruments

Simple and compound microscope, Refractive instruments like, trial case, retinoscope, optometers, ophthalmoscope, lensometer, slit lamp, tonometer, fundus camera, keratometer, orthoptic instruments, color vision.

OPTO ZC232 Optometric Optics II

Types of spectacle frames and lenses, toric surfaces, vertex distance & power, decentration of lenses, bifocal & multifocal lenses, tinted lenses, safety & industrial eye protective lenses, spectacle magnifiers, Fresnel prisms.

OPTO ZC241 Clinical Examination of Visual Systems

History, Visual acuity testing, ocular motility examination, slit lamp examination, IOP, Gonioscopy, Ophthalmoscopy, Examination of lachrymal system, orbit, macular function tests, visual field charting.

OPTO ZC242 Ocular Diseases II

Diseases of eye lids, Lacrimal system, Orbit, Sclera Conjunctiva and Cornea, Uvea, Vitreoretinal disorders, Cataract, Trauma, Blindness, Neuro-ophthalmic disorders.

OPTO ZC251 Ocular Disease I

Diseases of eye lids, Lacrimal system, Orbit, Sclera Conjunctiva and Cornea, Uvea, Vitreoretinal disorders, Cataract, Trauma, Blindness, Neuro-ophthalmic disorders.

OPTO ZC252 Visual Optics II

Correction of apherical ametropia, Axial vs refractive ametropia, Retinoscopy - principles and methods, objective and subjective methods; noncylinder, transposition of lenses, Spherical equivalent, Effective power of spectacle, Ocular refraction vs spectacle refraction, ocular accommodation vs spectacle accommodation, spectacle magnification and relative spectacle magnification, retinal image blur, depth of focus and depth of field.

OPTO ZC261 Visual Optics I

Review of geometric optics, optics of ocular structures, measurements of the optical constants of the eye, refractive anomalies and their causes, refractive conditions, far and near points of accommodation.

OPTO ZC262 Dispensing Optics II

Dispensing , lens, faults inspection, marking and edging of bifocal lenses.

OPTO ZC271 Dispensing Optics I

Surfacing and polishing, glazing frame manipulations, facial development and frame choice.

OPTO ZC311 Binocular Vision I

Spatial Sense, Grade of Binocular Vision, Panum's Space, Development of Binocular Vision.

OPTO ZC312 Binocular Vision II

ARC, Amblyopia, Clinical evaluation of squint, Heterophorias and Tropias, Nystagmus.

OPTO ZC321 Contact Lens 1

Indications and Contra indications of contact lens; Contact lens materials; Fitting philosophies; fitting in specialised situations; Types of contact lenses; Optics of contact lens; Design and manufacture of corneal lens; Contact lens care.

OPTO ZC322 Law & Optometry

Legal environment and techniques, Therapy of lenses, Optometrists in court, Malpractice, insurance, negligence, ethics, law governing practice of medical profession and para medical profession in India.

OPTO ZC331 Systemic Disease

Hypertension, Diabetes; Acquired heart disease, Genetics, Thyroid disorders, Connective tissue disease, General medical emergencies, introduction to neurology.

OPTO ZC332 Public Health & Community Optometry

Philosophy of public health, Epidemiology, Health care system, modes of health and vision care, environmental vision.

OPTO ZC341 Glaucoma

Aqueous humor dynamics, IOP and tonometry, evaluation of optic nerve head, visual fields, open angle glaucoma, angle of closure glaucoma, secondary glaucoma, principles of medical therapy.

OPTO ZC342 Paediatric Optometry

Examination and diagnosis in children; Refractive status; Ocular motility examination; Normal appearance; Pathology and Structural anomalies of Orbit, Eyelids, Lacrimal system, Conjunctiva; Compensatory treatment and Remedial therapy for various diseases.

OPTO ZC352 Occupational Optometry

Occupational health, hygiene, Factories Act, ESI Act, Occupational diseases, Safety, prevention, Visual standards, Problems of special occupational groups.

OPTO ZC351 Project I

OPTO ZC362 Project II

Students are given project assignment on their field of interest apart from involving them in projects involving visits to various schools and factories on ensuring visual standards.

OPTO ZC281 Clinics I

OPTO ZC272 Clinics II

OPTO ZC371 Clinics & Special Clinics I

OPTO ZC372 Clinics & Special Clinics II

Case sheet, history taking, lensometry, visual acuity, tests for phorias and tropias, external examination, slit lamp examination, drugs and method of application, do's and don'ts - pupillary dilatation, direct ophthalmology, indirect ophthalmoscopy, instrumentation, patients selection, keratometry reading, refraction, fluorescein pattern, over refraction, slit lamp examination, fitting of hard lenses, rigid gas permeable lenses and soft lenses in refractive errors and in specialized condition. The students are made to observe the intern initially, then gradually they are encouraged to work up a patient and perform various examination techniques. The portion of clinics I and clinics II are the same.