# Bachelor in Optometry

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BACHELOR OF SCIENCE IN OPTOMETRY
1st Year
GENERAL ANATOMY AND OCULAR ANATOMY

UNIT – 01

UNIT – 02

UNIT – 03

UNIT – 04
REPRODUCTIVE SYSTEM - MALE REPRODUCTIVE SYSTEM - FEMALE REPRODUCTIVE SYSTEM - PREGNANCY AND CHILD BIRTH - OCULAR EMBRYOLOGY – STRUCTURES DERIVED FROM SURFACES ECTODERM - NEUROECTODERM - MESODERM

UNIT – 05
UNIT – 06
SURGICAL SPACES IN THE ORBIT - EPISCLERAL SPACE - CENTRAL SURGICAL SPACE - PERIPHERAL SURGICAL SPACE - SUBPERIOSTEAL SPACE - MUSCLES IN THE ORBIT - INTRA OCULAR MUSCLES - EXTRA OCULAR MUSCLES - ORIGIN - INSERTION – BLOOD SUPPLY - NERVE SUPPLY - ACTION

UNIT – 07
EYELIDS - LAYERS - NERVES SUPPLY - BLOOD SUPPLY - MOVEMENTS OF EYELIDS - SURGICAL IMPORTANCE - LACRIMAL APPARATUS - LACRIMAL GLAND – ACCESSORY LACRIMAL GLANDS - CONJUNCTIVA SAC - LACRIMAL PUNCTA - LACRIMAL CANALICULI - LACRIMAL SAC - NASOLACRIMAL DUCT

UNIT – 08

UNIT – 09
ANATOMY OF ANGLE OF ANTERIOR CHAMBER & AQUEOUS HUMOUR - RETINA - LAYERS - BLOOD SUPPLY - NERVE SUPPLY - APPLIED ANATOMY - LENS & CILIARY ZONULE - DIMENSION - STRUCTURE

UNIT – 10
Vitreous - ANATOMY - ANATOMY OF THE VISUAL PATHWAY & BLOOD SUPPLY - RETINA - OPTIC NERVE - OPTIC CHIASMA - OPTIC TRACT - LATERAL GENICULATE BODY - OPTIC RADIATION - VISUAL CORTEX

UNIT – 11
OPHTHALMIC ARTERY - ORIGIN - BRANCHES - ANATOMY OF THE CIRCLE OF WILLIS - COULOMETER NERVE (III CRANIAL NERVE) - ORIGIN SUPPLY APPLIED ANATOMY - TROCHLEAR NERVE (IV CRANIAL NERVE) - ORIGIN SUPPLY - APPLIED ANATOMY -
UNIT – 12

FACIAL NERVE (VLL CRANIAL NERVE) - ORIGIN SUPPLY APPLIED ANATOMY - RELATIONSHIP PITUITARY FOSSA WITH VISUAL PATHWAY - NASAL CAVITY - PARANASAL AIR
GENERAL BIOCHEMISTRY OCULAR BIO-CHEMISTRY

UNIT – 01
CHEMICAL CONSTITUENTS OF LIFE CARBOHYDRATES

UNIT – 02
LIPIDS, PROTEINS, VITAMINS, ENZYMES

UNIT – 03
TEAR FILM, CORNEA

UNIT – 04
AQUEOUS HUMOUR, LENS

UNIT – 05
POSTING IN BIOCHEMISTRY LAB, THEORY AND PRACTICALS IN LAB, HB, TC

UNIT - 06
DC, ESR, BLOOD SUGAR

UNIT – 07
SERUM CHOLESTROL, BLOOD UREA, CREATININE

UNIT – 08
BLEEDING TIME, CLOTTING TIME

UNIT – 09
BLOOD GROUPING, URINE SUGAR

UNIT – 10
MOTION EXAMINATION, POSTING IN MICROBIOLOGY LAB

UNIT – 11
CORNEAL SCARPING, GRMAS STAIN

UNIT – 12
KOHSTAIN, CULTURE AND SENSITIVITY
GENERAL PHYSIOLOGY AND OCULAR PHYSIOLOGY

UNIT – 01
INTRODUCTION - DEFINITION - FUNCTIONS - CENTRAL NERVOUS SYSTEM – CARDIOVASCULAR SYSTEM - GASTRO INTESTINAL SYSTEM - RESPIRATORY SYSTEM - EXCRETORY SYSTEM - SENSE ORGANS - BLOOD GROUPING

UNIT – 02

UNIT – 03
PHYSIOLOGY OF AQUEOUS - FORMATION - DRAINAGE - MAINTENANCE OF IOP - PHYSIOLOGY OF LENS - COMPOSITION - METABOLISM - PUPIL - NORMAL PUPIL – LIGHTREFLEX - NEAR REFLEX

UNIT – 04
ACCOMMODATION - DEFINITION - MECHANISM - COMPONENTS

UNIT – 05
THEORIES - RANGE OF ACCOMMODATION - AMPLITUDE OF ACCOMMODATION - ACCOMODATION - CONVERGENCE RATIO - PRESBYOPIA

UNIT – 06
RETINA - VISUAL CYCLE - ELECTRO PHYSIOLOGY - EOG - ERG - VEP

UNIT - 07
COLOR VISION - VISIBLE SPECTRUM - THEORIES OF COLOR VISION - DEFECTIVE COLOR VISION - TESTS FOR COLOR VISION

UNIT – 08
PHYSIOLOGY OF BINOCULAR VISION - INTRODUCTION - MECHANISM - GRADES - THEORIES OF BINOCULAR VISION - HOROPTER - PANUM’S SPACE -
UNIT - 09
PHYSIOLOGICAL DIPLOPIA - CONFUSION & DIPLOPIA - RETINAL RIVALRY - SUPPRESSION - AMBLYOPIA - TESTS FOR BINOCULAR VISION

UNIT – 10
EXTRA OCULAR MOVEMENTS - AXES OF FICK - LISTING’S PLANE - DUCTIONS - VERSIONS - VERGENCE - POSITIONS OF GAZE

UNIT – 11
AGNOIST - SYNERGIST - ANTAGONIST - HERRINGS LAW - SHERRINGTONS LAW

UNIT – 12
PRIMARY - SECONDARY & TERTIARY ACTION OF MUSCLES - EFFECT OF PARALYSIS
GEOMETRIC OPTICS

UNIT - 01
PROPERTIES OF LIGHT, PROPAGATION OF LIGHT

UNIT - 02
PHOTON, INTERFERENCE, POLARIZATION

UNIT - 03
LASAR, PRINCIPLES OF REFLECTION OF LIGHT, LAWS OF REFLECTION, PLANE MIRROR

UNIT - 04
CONCAVE MIRROR, CONVEX MIRROR, PRINCIPLES OF REFRACTION OF LIGHT

UNIT - 05
LAWS OF REFRACTION, REFRACTION THROUGH PLATE OF GLASS, REFRACTION THROUGH THE PRISM

UNIT - 06
POLYCHROMATIC EFFECTS, NOMENCLATURE OF PRISMS, CENTRAD

UNIT - 07
PRIMS DIOPTRES, ROTATING PRISMS, REFRACTION AT CURVE SURFACES

UNIT - 08
LENS AND THEIR COMBINATIONS, INTRODUCTION - CONVEX AND CONVACE, PRINCIPAL AXIS OR OPTICAL AXIS, FOCAL LENGTH, DIOPTRE

UNIT - 09
OPTICAL CENTRE OF LENS, IMAGES FORMED BY VARIOUS LENSES - CONVEX LENS & CONCAVE LENS, CYLINDRICAL LENSES, STURMS CONOID

UNIT - 10
GAUSS THEOREM, COMBINATION OF CYLINDRICAL LENSES, OPTICAL ABERRATIONS, DIFFRACTION

UNIT - 11
CHROMATIC ABERRATIONS, MONO CHROMATIC ABERRATIONS, SPHERICAL, COMO OR SINE

UNIT - 12
REFRACTION ON ECCENTRIC RAYS, CURVATURE & DISTORTION, DEPTH OF FOCUS
PHYSICAL & OPTICS

UNIT – 01

EYES AS A REFRACTING APPARATUS - CATOPTRIC IMAGERY OF THE EYE – PURKINJESANSON IMAGETHE CORNEAL AND LENTICULAR SYSTEM - REFRACTIVE INDEX OF CORNEA - CURVATURE OF ANTERIOR SURFACE

UNIT – 02

OPTICAL RESOLUTION OF THE EYE - SCHEMATIC EYE OF GULL STRAND - LISTING’S REDUCED EYE - DONDER’S REDUCED EYE - VISUAL ANGLES - VISUAL ACUITY - VISUALAXES AND AXIAL LENGTH OF EYE - VISUAL ANGLE - LINE ACUITY - VERNIER ACUITY

UNIT – 03

VISUAL ACUITY - DISTANCE VISION - NEAR VISION - OBJECTIVE ASSESSMENT OF VISION - OPTOKINETIC NYSTAGMUS - OSCILLATORY MOTION - ARRESTING NYSTAGMUS - AXISOF THE EYE

UNIT – 04

OPTICAL AXIS - VISUAL AXIS - FIXATION AXIS - VISUAL ANGLES AXIAL LENGTH - OPTICAL ABERRATIONS OF THE EYE - CHROMATIC ABERRATIONS - MONO CHROMATIC ABERRATIONS - SPHERICAL ABERRATIONS - DEPTH OF FOCUS - SINE CONDITION -

UNIT – 05

CURVATURE AND DISTORTION - ERRORS OF REFRACTION - INTRODUCTION - AXIAL - CURVATURE - RELATIVE POSITIONS OF REFRACTING SURFACES - INDEX – ABSENCES OF ELEMENTS - DISTRIBUTION OF REFRACTIVE ERRORS - CLINICAL SYMPTOMS - VISUAL SYMPTOMS

UNIT – 06

OCULAR SYMPTOMS - REFERRED SYMPTOMS - FUNCTIONAL SYMPTOMS -
HYPERMETROPIA - CLASSIFICATION - CLINICAL SYMPTOMS - TREATMENT - APHAKIA - OPTIC OF APHAKIA - VISION IN APHAKIA - FIELD IN APHAKIA - TREATMENT

UNIT – 07

PSEUDOPHAKIA - MYOPIA - SIMPLE MYOPIA - PATHOLOGICAL MYOPIA - TREATMENT

UNIT – 08

ASTIGMATISM - REGULAR ASTIGMATISM - WITH THE RULE - AGAINST THE RULE - HYPERMETROPIC ASTIGMATISM - MYOPIC ASTIGMATISM - MIXED ASTIGMATISM - IRREGULAR ASTIGMATISM - BASIC KERATOCONUS - TREATMENT

UNIT – 09

BINOCULAR OPTICAL DEFECTS - ANISOMETROPIA - SIMPLE COMPOUND -

UNIT – 10

MIXED - SIMPLE ASTIGMATIC ANISOMETROPIA - COMPOUND ASTIGMATIC ANISOMETROPIA -

UNIT – 11

MIXED ASTIGMATIC - ANISOMETROPIA

UNIT – 12

ANISEIKONIA - SYMMETRICAL - ASYMMETRICAL - AETIOLOGY - SYMPTOMS - CLINICAL MEASUREMENT - TREATMENT
PHYSICAL OPTICS GEOMETRIC OPTICS - PRACTICAL

UNIT - 01

PHYSICAL OPTICS:

1. REFRACTIVE INDEX OF PRISM FOR SODIUM D-LINE USING SPECTROMETER
2. DISPERSE POWER OF PRISM FOR HG SOURCE USING SPECTROMETER
3. AIR WEDGE- INTERFERENCE METHOD TO FIND DIAMETER OF AN OPTICALLY THIN WIRE
4. NEWTON’S RING- TO FIND OF SODIUM LIGHT
5. BIPRISM- TO FIND OF SODIUM LIGHT
6. DIFFRACTION GRATING- [MINIMUM DEVIATION METHOD]. OF HG PROMINENT LINES
7. POLARIMETER -SPECIFIC ROTATION OF DEXTROSE AND CONCENTRATION OF IV INJECTION
8. LUMMEN BRODEM PHOTOMETER- COMPARISON OF LUMINOUS POWER
9. U OF LIQUID - USING LIQUID PRISM-SPECTROMETER
10. MICHELSON INTERFEROMETER- WAVELENGTH OF LASER LIGHT

UNIT - 02

GEOMETRIC OPTICS:

1. F & U OF CONVEX LENS [ F BY U- V AND SHIFT METHOD]
2. F' & U OF CONCAVE LENS [ F OF CONCAVE LENS BY U-V METHOD, COMBINED LENS UV METHOD, R - BOY´S METHOD]
3. U OF THE PRISM ( I-D CURVE)
4. U OF SLAB - SHIFT METHOD[ TRAVELING MICROSCOPE]
5. U OF LIQUID - SHIFT METHOD[ TRAVELING MICROSCOPE]
6. F' OF CONVEX MIRROR
7. F' OF CONCAVE MIRROR [U- V GRAPH]
8. VERIFICATION OF LAWS OF REFLECTION- PLANE MIRROR
9. VERIFICATION OF LAWS OF REFRACTION- GLASS SLAB- PIN METHOD[ BY LATERAL SHIFT]
10. RESOLVING POWER OF TELESCOPE
11. PHOTODIODE- CHARACTERISTICS
12. PLANK´S CONSTANT
BACHELOR OF SCIENCE IN OPTOMETRY
2nd Year
GENERAL & OCULAR PHARMACOLOGY

UNIT – 01
GENERAL PHARMACOLOGY - DEFINITION - PHARMACOKINETICS

UNIT – 02
PHARMACODYNAMICS - ROUTES OF ADMINISTRATION - ADVERSE EFFECTS

UNIT – 03
OCULAR PHARMACOLOGY - PHARMACOKINETICS AND ROUTES OF ADMINISTRATION - TOPICAL - SUB CONJUNCTIVAL INJECTION - ANTERIOR AND POSTERIOR SUBTENON INJECTION - RETROBULBAR INJECTION - INTRACAMERAL INJECTION - INTRAVITREAL INJECTION - ORAL PREPARATION - INTRA MUSCULAR AND INTRA VENOUS INJECTION

UNIT – 04
ANTIBACTERIAL AGENTS IN OPHTHALMOLOGY - ANTIBIOTICS - DEFINITION - PRINCIPLES OF ACTION - SIDE EFFECTS OF ANTIBIOTICS - INDICATION OF ANTIBIOTIC USE - ANTIFUNGAL AGENTS - DEFINITION - PRINCIPLES OF ACTION - SIDE EFFECTS OF ANTI FUNGALS - INDICATION OF ANTI FUNGALS

UNIT – 05
ANTIVIRAL AGENTS - DEFINITION - PRINCIPLES OF ACTION - SIDE EFFECTS OF ANTIVIRAL - INDICATION OF ANTIVIRAL

UNIT – 06
ANTI-INFLAMMATORY AGENTS

UNIT – 07
STEROIDS - AVAILABLE FORMS - PRINCIPLE OF STEROID THERAPY - INDICATION OF STEROIDS - CONTRA INDICATION OF STEROIDS - COMPLICATIONS - NON STEROIDS - AVAILABLE FORMS - MECHANISM OF ACTION - SIDE EFFECTS OF NON STEROID
UNIT – 08

ARTIFICIAL TEARS - AVAILABLE FORMS - USES - ANAESTHETIC AGENTS – MECHANISM OF ACTION - ROUTES OF ADMINISTRATION - LOCAL ANAESTHESIA – REGIONAL ANAESTHESIA

UNIT – 09


UNIT – 10

MIOTICS - PARASYMPATHOMIMETICS - PILOCARPINE - CARBACHOL - DURATION OF ACTION - MECHANISM OF ACTION - INDICATION - SIDE EFFECT - VISCOELASTIC SUBSTANCES - MECHANISM OF ACTION - AVAILABLE FORMS - ANTERIOR CHAMBER IRRIGATING SOLUTIONS - BALANCED SALT SOLUTION - COMPONENTS - USES

UNIT – 11


UNIT – 12

DYES USED IN OPHTHALMOLOGY - FLUORESCIN SODIUM - USES IN OPHTHALMOLOGY - FUNDUS FLUORESCIN ANGIOGRAPHY - OTHER USES IN OPHTHALMOLOGY - PREPARATION - SIDE EFFECTS - TOXIC REACTION - ROSE BENGAL - ACTION - OPHTHALMIC USES - MISCELLANEOUS AGENTS - METHYLENE BLUE - TRYPTAN BLUE - INDOCYANINE GREEN - THERAPY OF NUTRITIONAL DISORDERS AFFECTING THE EYE - VITAMIN A - VITAMIN B1 - B6 - B12 - VITAMIN C - VITAMIN D - VITAMIN K -
MICROBIOLOGY & PATHOLOGY

UNIT – 01

UNIT – 02
FIXING OF SLIDES - MICROSCOPY - STAINING - POTASSIUM HYDROXIDE MOUNT - GRAM’S STAINING - GIEMSA STAINING - CULTURE

UNIT – 03
BACTERIOLOGY - DEFINITION - CLASSIFICATION - GRAM POSITIVE COCCI – COMMON ORGANISMS - STAPHYLOCOCCI - STREPTOCOCCI - PNEUMOCOCCI - CLINICAL IMPORTANCE - DIAGNOSIS - GRAM POSITIVE BACILLI - COMMON ORGANISMS - CORYNEBACTERIUM DIPHTHERIAE - C.XEROSIS.

UNIT – 04

UNIT – 05
CLINICAL IMPORTANCE - DIAGNOSIS - SPIROCHETES - COMMON ORGANISMS - TREPONEMATID PALLIDUM - LEPTOSPIRA - CLINICAL IMPORTANCE - DIAGNOSIS - CHLAMYDIAE - COMMON ORGANISMS - TRIC, LGV.

UNIT – 06
CLINICAL IMPORTANCE - DIAGNOSIS - OCULAR VIROLOGY - DEFINITION -
UNIT – 07

CLINICAL IMPORTANCE - DIAGNOSIS - OCULAR PARASITOLOGY - DEFINITION -
CLASSIFICATION - ACANTHAMOEBA - TOXOPLASMA - TOXOCARA - FILARIA -
CYSTICERCUS - ECHINOCOCCUS - PHTHIRUS - COMMON PARASITES

UNIT - 08

CLINICAL IMPORTANCE - DIAGNOSIS - OCULAR MYCOLOGY - DEFINITION -
CLASSIFICATION - COMMON FUNGI - FUSARIUM, ASPERGILLUS, MUCOR, CANDIDA, -
RHINOSPORIDIIUM, HISTOPLASMA.

UNIT – 09

CLINICAL IMPORTANCE - DIAGNOSIS - OCULAR IMMUNOLOGY - DEFINITION – CLINICAL
IMPORTANCE - TYPE 1, TYPE 2, TYPE 3, TYPE 4 REACTION - STERILIZATION AND DISINFECTION -
STERILIZATION - DEFINITION - METHODS - HEAT (DRY, MOIST HEAT), IONISING RADIATION -
FILTRATION - STERILANT GASES - STERILANT LIQUIDS - DISINFECTION - DEFINITION - METHODS -
HEAT - UV RADIATION - CHEMICAL AGENTS - FILTRATION - GASES - CHOICES OF METHODS.

UNIT – 10

GENERAL PATHOLOGY - NORMAL CELL - INJURY - INFLAMMATION - VASCULAR
COMPONENT - CELLULAR COMPONENT - HEALING AND REPAIR - VASCULAR
COMPONENT - CELLULAR COMPONENT - HYPER SENSITIVITY REACTIONS - TUMOURS.

UNIT – 11

OCULAR PATHOLOGY - EYE LIDS - CHALAZION - HORDEOLUM INTERNUM – HORDEOLUM -
EXTERNUM - CONJUNCTIVA - CONJUNCTIVITIS - CORNEA.

UNIT – 12

ULCERS - KERATOCONNUS - LENS - PATHOLOGY OF CATARACT - LENS INDUCED GLAUCOMA &
UVEITIS - TUMOURS - RETINOBLASTOMA - MALIGNANT MELANOMA TUMOURS - ORBITAL
TUMOURS & PSEUDO TUMOURS- SQUAMOUS CELL CARCINOMA - LACRIMAL GLAND.
UNIT – 1

CLINICAL EXAMINATION OF VISUAL SYSTEM - HISTORY - OCULAR SYMPTOMS – THE PAST - RESCRIPTION & ITS INFLUENCE - VISUAL ACUITY TESTING - DISTANCE AND NEAR - COLOR VISION

UNIT – 2

EXAMINATION OF MUSCLE BALANCE - SLIT LAMP EXAMINATION - EXAMINATIONS OF EYE LIDS - CONJUNCTIVA AND SCLERA - EXAMINATION OF CORNEA - EXAMINATION OF IRIS -CILIARY BODY AND PUPIL - EXAMINATION OF LENS - EXAMINATION OF INTRAOCULAR PRESSURE AND EXAMINATION OF ANGLE OF ANTERIOR CHAMBER

UNIT – 3

OPHTHALMOSCOPY - DIRECT AND INDIRECT - EXAMINATION OF FUNDS (VITREOUS AND DISC) - (CHOROID AND RETINA) - EXAMINATION OF LACRIMAL SYSTEM – EXAMINATION OF THE ORBIT - MACULAR FUNCTION TEST - VISUAL FIELD CHARTING (CENTRAL), (PERIPHERAL) - NEURO - OPHTHALMOLOGICAL EXAMINATION
UNIT - 01
SPECTACLE LENSES - INTRODUCTION TO SPECTACLE LENSES - FORMS OF LENSES - CYLINDRICAL AND SPHERO CYLINDRICAL LENSES - PROPERTIES OF CROSSED CYLINDERS.

UNIT - 02
TORIC LENSES, TORIC TRANSPOSITION - ASTIGMATIC LENSES - AXIS DIRECTION OF ASTIGMATIC LENSES - OBLIQUELY CROSSED CYLINDERS - SAG FORMULAE - MISCELLANEOUS SPECTACLE LENSES.

UNIT - 03
VERTEX DISTANCE AND VERTEX POWER - TILT INDUCED POWER - ABBERATIONS IN OPHTHALMIC LENSES - FRESNEL PRISMS, LENSES AND MAGNIFIERS.

UNIT - 04
SPECTACLE LENSES - MANUFACTURE OF GLASS - LENS SURFACING - PRINCIPLE OF SURFACE GENERATION AND GLASS CEMENTS.

UNIT - 05
LENS QUALITY - FAULTS IN LENS MATERIAL - FAULTS ON LENS SURFACE - INSPECTING THE QUALITY OF LENSES - TOUGHENED LENSES.

UNIT - 06
OPHTHALMIC LENSES - DEFINITION OF PRISMS, UNITS OF PRISM POWER - THICKNESS DIFFERENCE AND BASE APEX NOTATIONS - DIVIDING, COMPOUNDING AND RESOLVING PRISMS - ROTARY PRISMS AND EFFECTIVE PRISM POWER IN NEAR VISION - PRISMATIC EFFECT, DECENTRATION, PRENTICE RULE - PRISMATIC EFFECT OF SPHEROCYLINDERS AND PLANO CYLINDERS - DIFFERENTIAL PRISMATIC EFFECTS. UNIT – 07
SPECTACLE FRAMES - TYPES AND PARTS - CLASSIFICATION OF SPECTACLE FRAMES - MATERIAL, WEIGHT, TEMPLE POSITION, COLORATION - FRAME CONSTRUCTION, FRAME MEASUREMENTS AND MAKINGS. UNIT - 08
TINTED AND PROTECTIVE LENSES - CHARACTERISTICS OF TINTED LENSES - ABSORPTIVE GLASSES - POLARISING FILTERS - PHOTOCHROMIC FILTERS - REFLECTING FILTERS. UNIT - 09 BIFOCAL LENSES - TRIFOCAL LENSES - PROGRESSIVE ADDITION LENSES - LENTICULAR LENSES - REFLECTION FROM SPECTACLE LENSES, GHOST IMAGES, REFLECTIONS IN BIFOCALS AT THE DIVIDING LIN.

UNIT – 10
UNIT - 11
SPECIAL LENSES - EXAMINATION OF SPECIMENS - LENS FAULTS INSPECTIONS - MEASUREMENTS OF ASSORTED FACES FOR SPECTACLE.

UNIT - 12
MAKING AND EDGING OF BIFOCAL LENSES - EDGING OF LENSES FOR PLASTIC, METAL AND RIMLESS FRAMES - JOINING PLASTICS BY DIFFERENT SOLVENTS.
PRACTICAL-OPTOMETRIC & VISUAL OPTICS

UNIT - 01
1. SURFACING AND POLISHING GLASS LENSES
2. GLAZING
3. FRAME MANIPULATION AND REPAIR
4. FACIAL MEASUREMENTS AND FRAME CHOICE
5. POWER AND DIMENSION MEASUREMENTS OF COMPLETE PAIR OF SPECTACLES
6. COMPLETE DISPENSING FOR SUBJECTS
7. SPECIAL LENSES - EXAMINATION OF SPECIMENS
8. LENS FAULTS INSPECTIONS
9. MEASUREMENTS OF ASSORTED FACES FOR SPECTACLE
10. MAKING AND EDGING OF BIFOCAL LENSES
11. EDGING OF LENSES FOR PLASTIC, METAL AND RIMLESS FRAMES
12. JOINING PLASTICS BY DIFFERENT SOLVENTS
VISUAL OPTICS

UNIT – 01
REVIEW OF GEOMETRIC OPTICS - VERGENCE AND POWER - CONJUGANCY – OBJECT SPACE AND IMAGE SPACE - SIGN CONVENTION

UNIT – 02
SPHERICAL REFRACTING SURFACE - SPHERICAL MIRROR - CATOPTRIC POWER -CARDINAL POINTS - MAGNIFICATION

UNIT – 03

UNIT – 04
CONCAVE CURVATURE AND THICKNESS - KERATOMETRY - CURVATURE OF THE LENS AND OPThALMOPHAKOMETRY - AXIAL AND AXIS OF THE EYE

UNIT – 05
REFRACTIVE ANOMALIES AND THEIR CAUSES - AETIOLOGY OF REFRACTIVE ANOMALIES - CONTRIBUTING VARIABILITIES AND THEIR RANGES

UNIT – 06
POPULATING DISTRIBUTIONS OF ANOMALIES - OPTICAL COMPONENT MEASUREMENT -GROWTH OF THE EYE IN RELATION TO REFRACTIVE ERRORS

UNIT – 07
REFRACTIVE CONDITIONS - EMMETROPIA - MYOPIA - HYPEROPIA – ASTIGMATISM - ACCOMMODATION - PRESBYOPIA

UNIT – 08
FAR AND NEAR POINTS OF ACCOMMODATION - CORRECTION OF SPHERICAL
UNIT – 09

RETINOSCOPY LL - PRINCIPLES AND METHODS - RETINOSCOPY - SPEED OF REFLEX AND OPTIMUM CONDITION

UNIT – 10

RETINOSCOPY - DESIGN CONSIDERATION - REVIEW OF OBJECTIVE REFRACTIVE METHODS - REVIEW OF SUBJECTIVE REFRACTIVE METHODS - CROSS CYLINDER METHODS FOR ASTIGMATISM - DIFFICULTIES IN SUBJECTIVE TESTS AND THEIR AVOIDANCE - TRANPOSITION OF LENSES - SPHERICAL EQUIVALENT

UNIT – 11

EFFECTIVE POWDER OF SPECTACLES VERTEX DISTANCE EFFECTS - OCULAR REFRACTION VERSUS SPECTACLE REFRACTION - OCULAR ACCOMMODATION VERSUS SPECTACLE ACCOMMODATION

UNIT – 12

SPECTACLE MAGNIFICATION AND RELATIVE SPECTACLE MAGNIFICATION - RETINAL IMAGE BLUR - DEPTH OF FOCUS AND DEPTH OF FIELD
CONTACT LENSES

UNIT - 01
AMBLYOPIA AND ECCENTRIC FIXATION - TREATMENT OF AMBLYOPIA - SPECIAL FORMS OF STRABISMUS - NYSTAGMUS - NON SURGICAL MANAGEMENT OF STRABISMUS.

UNIT - 02
CONTACT LENS HISTORY & DEVELOPMENT. BENEFITS OF CONTACT LENS OVER SPECTACLE. MANUFACTURING METHODS-SPIN CAST, LATHE CUT, CAST MODELING. SLIT LAMP EXAMINATION TECHNIQUE.

UNIT - 03
CORNEAL TOPOGRAPHY-KERATOMETRY & EXTENDED KERATOMETRY. CONTACT LENS OPTICS-CONTACT LENS & SPECTACLE LENS. BACK VERTEX CALCULATION. CONTACT LENS & TEAR LENS SYSTEM.

UNIT - 04
CLASSIFICATION OF CONTACT LENS & ITS MATERIAL (SOFT & RGP); MATERIAL PROPERTY. CONTACT LENS TERMINOLOGY. RGP & SOFT LENS DESIGN. FDA CLASSIFICATION OF CONTACT LENS MATERIAL.

UNIT - 05
PATIENT SELECTION & PRESCREENING. INDICATIONS & CONTRA INDICATIONS OF CONTACT LENS. SOFT SPHERICAL CONTACT LENS FITTING & ASSESSMENT. SOFT CONTACT LENS CASE & MAINTENANCE. SPHERICAL RGP CONTACT LENS FITTING & ASSESSMENT.

UNIT - 06
RGP CONTACT LENS CARE & MAINTENANCE. CONTACT LENS FITTING IN ASTIGMATISM. CONTACT LENS FITTING IN KERATOKONUS. CONTACT LENS FITTING IN CHILDREN. RGP LENSES - LOW D.K. AND HIGH D.K LENSES. INSTRUCTIONS REGARDING HANDLING AND CARE OF LENSES.

UNIT - 07
COSMETIC AND PROSTHETIC CONTACT LENSES. EXTENDED WEAR LENSES VERSUS DAILY WEAR. DISPOSABLE LENSES. CONTACT LENS - TORIC, BIFOCAL, MULTIFICAL.
UNIT - 08
THERAPEUTIC LENSES / BANDAGE LENSES. CONTACT LENS SOLUTIONS - PRINCIPLE OF ACTION, COMPOSITIONS ORDERING CONTACT LENSES - WRITING PRESCRIPTION TO THE LAB. CONTACT LENS MODIFICATIONS OF FINISHED LENSES (RGP).

UNIT - 09
CHECKING THE PARAMETERS. RECENT ADVANCES IN CONTACT LENSES. FOLLOW UP EXAMINATIONS. CONTACT LENS COMPLICATIONS AND THEIR MANAGEMENT - PROSTHETIC EYE FITTING PROCEDURES & CONFORMERS.

UNIT - 10
SPATIAL SENSE - EVOLUTION OF BINOCULAR VISION - BINOCULAR FUSION, SUPPRESSION, RIVALRY & SUMMATION - VISUAL DIRECTION, LOCAL SIGN & CORRESPONDING POINTS - VISUAL DISTANCE, EMPIRICAL CLUES.

UNIT - 11
PANUM’S SPACE - STEREOPSIS - DEVELOPMENT OF BINOCULAR VISION - THE LONGITUDINAL HOROPTER - NEURAL ASPECTS OF BINOCULAR VISION – VISUALLY GUIDED BEHAVIOUR AND ANISEIKONIA - ARC.

UNIT - 12
QUALITATIVE & QUANTITATIVE DIAGNOSIS OF STRABISMUS - ESODEVIATION - EXODEVIATION - A-V PHENOMEAN - CYCLOVERTICAL SQUINT - PSEUDOSTRABISMUS
UNIT - 01
SPECTACLE FRAME CURRENT FRAME MATERIALS: PLASTICS, METALS - FRAME TYPES: COMBINATION OF FRAMES, HALF-EYE FRAMES, MOUNTS, NYLON-CORD FRAME, SPECIAL PURPOSE FRAMES.

UNIT - 02
FRAME MEASUREMENTS: THE BOXING SYSTEM, THE DATUM SYSTEM, COMPARISON OF THE TWO SYSTEMS, LENS POSITION, SEGMENT SPECIFICATION - FRAME SELECTION: FASHION, FUNCTION, FEEL, CONFLICTING NEEDS, PRICE, STANDARD ALIGNMENT - TECHNICAL AND FASHION CRITERIA, SOME TIPS ON SELECTION.

UNIT - 03
FACIAL MEASUREMENT: THE PD, VISUAL AXES, MEASURING INTER PAPILLARY DISTANCE, USING PD RULER, COMMON DIFFICULTIES IN MEASURING PDS, MEASURING MONOCULAR PD, MEASURING NEAR PD - MEASURING HEIGHTS: SINGLE VISION, MULTI FOCAL, BI-FOCAL, PROGRESSIVE.

UNIT - 04
PEDIATRIC DISPENSING: THE CHANGING IMAGE OF SPECTACLE, AGE DIFFERENCES - SURFACING AND POLISHING GLASS, LENSES - POWER AND DIMENSION MEASUREMENTS OF COMPLETE PAIR OF SPECTACLES - COMPLETE DISPENSING FOR SUBJECTS.

UNIT - 05
LENS SELECTION: TECHNICAL CRITERIA, COMMUNICATING WITH KIDS. THE KIDS CORNER, FACIAL MEASUREMENT OF THE KIDS, PDS CENTRES, BIFOCALS.

UNIT - 06
DEALING WITH PROBLEMS: DEALING WITH CLIENTS, COMMON CLIENT PROBLEMS, DEALING WITH PROFESSIONAL COLLEAGUES, DEALING WITH THE LABORATORIES.

UNIT - 07
SPECIAL NEEDS DISPENSING: OCCUPATIONAL DISPENSING, HAZARDS IN THE WORK PLACE, OCCUPATIONAL HEALTH SAFETY LEGISLATION, COMMON HAZARDS.
UNIT - 08
EYE PROTECTION: INDUSTRIAL EYE PROTECTION, SPORT STANDARDS COVERING EYE PROTECTION, LENS MATERIALS & IMPACT RESISTANCE, FRAME & EYE PROTECTION.

UNIT - 09
IDENTIFYING THE LOW VISION PATIENTS - HISTORY - DIAGNOSTIC PROCEDURES IN LOW VISION CASE MANAGEMENT - OPTICS OF LOW VISION AIDS - REFRACTION, SPECIAL CHARTS, RADICAL RETINOSCOPY - EVALUATING NEAR VISION-AMSLER GRID AND FILED DEFECTS, PRISMATIC SCANNING - GUIDELINES TO DETERMINE MAGNIFICATION AND SELECTING LOW VISION AIDS FOR DISTANCE, INTERMEDIATE AND NEAR.

UNIT - 10
SPECTACLE MOUNTED TELESCOPES AND MICROSCOPES - CHILDREN WITH LOW VISION - CHOICE OF TESTS, AIDS IN DIFFERENT PATHOLOGICAL CONDITIONS.

UNIT - 11
LIGHT, GLARE AND CONTRACTS IN LOW VISION CARE AND REHABILITATION – BIOPTIC TELESCOPES.

UNIT - 12
OPTICAL DEVICES TO HELP PEOPLE WITH FIELD DEFECTS - CONTACT LENS COMBINEDSYSTEM - REHABILITATION OF THE VISUALLY HANDICAPPED.
GERIATRIC OPTOMETRY

UNIT – 01
UNDERSTANDING OLDER PATIENTS, IMPLICATIONS OF DEMOGRAPHIC TRENDS, AGING AND THE LIFE CYCLE CONTINUUM, AGEISM - MYTHS, STEREOTYPES, AND REALITIES ABOUT OLDER PERSONS

UNIT - 02
MEETING THE NEEDS OF OLDER PATIENTS, PSYCHOLOGICAL AND SOCIAL ASPECTS OF AGING, AGE-RELATED DIFFERENCES IN COGNITIVE ABILITIES, IMPLICATIONS FOR STAFF ROLE, IMPLICATIONS FOR OFFICE DESIGN

UNIT – 03
FACTORS THAT INFLUENCE THE EXAMINATION AND MANAGEMENT OF THE OLDER PATIENT, MULTIPLE HEALTH PROBLEMS, COMMUNICATION PROBLEMS, POLYPHARMACY - COMPLIANCE ISSUES, INTERACTION OF PSYCHOLOGICAL, SOCIAL, AND PHYSICAL FACTORS, CLINICAL EVALUATION - METHODS AND TECHNIQUES, INTERDISCIPLINARY TEAM CARE, INSTITUTIONAL AND HOME-BOUND PATIENT CARE

UNIT – 04
SYSTEMIC CHANGES OF AGING, HOMEOSTASIS, HEALTH AND LEVELS OF IMPAIRMENT: A CONTINUUM, PHYSIOLOGICAL CHANGES IN AGING, BODY COMPOSITION, SENSORY PATTERNS, STATURE AND POSTURE, CARDIOVASCULAR SYSTEM, MUSCULOSKELETAL SYSTEM, ENDOCRINE SYSTEM, METABOLIC SYSTEM, IMMUNE SYSTEM, NEUROLOGICAL SYSTEM, NUTRITIONAL NEEDS, REST AND SLEEP PATTERNS

UNIT – 05
SYSTEMIC DISEASES OF AGING, HYPERTENSION, ARTHRITIS, DIABETES, THE DEMENTIAS, DEMENTIA OF THE ALZHEIMER TYPE, ILLNESSES WHICH CAN BE CONFUSED WITH DEMENTIA, PHYSICAL AND PSYCHOLOGICAL DEFICITS, OTHER IMPORTANT SYSTEMIC DISEASES OF AGING
UNIT - 06
OCULAR AGING, EXPECTED AGE-RELATED OCULAR CHANGES, CHANGES IN THE ADNEXA, CHANGES IN EXTRA-OCULAR MUSCLES, MEDIA CHANGES AND EFFECTS, RETINAL AGING AND FUNCTIONAL EFFECTS, CENTRAL NERVOUS SYSTEM EFFECTS

UNIT – 07
VISUAL-PERCEPTUAL CHANGES AND FUNCTIONAL RAMIFICATIONS, STATIC AND DYNAMIC VISUAL ACUITY, OCULAR MOTILITY, AMPLITUDE OF ACCOMMODATION, ACCOMMODATIVE-CONVERGENCE RELATIONSHIPS, CONTRAST SENSITIVITY FUNCTION, COLOR VISION EFFECTS, DARK ADAPTATION, CHANGES IN REFRACTIVE STATE, OTHER PERCEPTUAL RESPONSES INCLUDING CHANGES IN RESPONSE TO LUMINANCE LEVELS

UNIT – 08
COMMON AGE-RELATED OCULAR DISEASES, ANTERIOR SEGMENT DISEASE, CORNEAL DISEASE, CATARACT, VITREAL DISORDERS, RETINAL DISEASE, OPTIC NERVE DISORDERS, GLAUCOMA, NEURO-OPHTHALMIC DISEASE

UNIT – 09
DRUG USE AND ABUSE IN THE ELDERLY, PHARMACOKINETICS AND DYNAMICS, SYSTEMIC AND OCULAR EFFECTS OF MEDICATIONS, PRESCRIPTION DRUGS AND OVER-THE-COUNTER MEDICATIONS, POLYPHARMACY AND ADVERSE DRUG INTERACTIONS, PATIENT EDUCATION AND COMPLIANCE, SUBSTANCE ABUSE

UNIT - 10
HISTORY OF GENETIC FACTORS, PRENATAL FACTORS, PERINATAL FACTORS, POSTNATAL FACTORS, NORMAL APPEARANCE, PATHOLOGY AND STRUCTURAL ANOMALIES OF ORBIT, EYELIDS, LACRIMAL SYSTEM, CONJUNCTIVA, CORNEA, VITREOUS, FUNDUS, OCULOMOTOR SYSTEM.

UNIT – 11
MODIFICATION OF CLINICAL PROCEDURES, OPTOMETRIC AND FUNCTIONAL CASE HISTORY, ASSESSING VISUAL ACUITIES, REFRACTING AND PRESCRIBING, EVALUATING OCULAR HEALTH, ASSESSING VISUAL FIELDS, EVALUATING BINOCULARITY, IMPLICATIONS FOR SPECIAL TESTS,
INDICATIONS FOR COLOR, CONTRAST, AND GLARE TESTING, INDICATIONS FOR LABORATORY AND IMAGING TESTING, SENSORY MOTOR ADAPTABILITY

UNIT - 12
MANAGING COMMON VISION DISORDERS, LENS DESIGN OPTIONS FOR REFRACTIVE DISORDERS, PRESCRIBING OPHTHALMIC LENSES FOR ACTIVE ELDERS, REHABILITATION TECHNIQUES FOR ELDERS WITH VISUAL IMPAIRMENT, DRUG THERAPY, NUTRITION AND NUTRITIONAL THERAPY, MANAGEMENT AND COMANAGEMENT CONSIDERATIONS, MONITORING PERFORMANCE AND ENSURING CONTINUITY OF CARE.
OPTOMETRY PRACTICE

UNIT - 01
LIGHT-PROPERTIES, PROPAGATION. WAVES- TYPES, MEASURABLE PARAMETERS OF WAVES, ELECTROMAGNETIC SPECTRUM. PHOTOBIOLOGY, PHOTON, RAY, LAW OF INVERSE SQUARES, FORMATION OF IMAGE. INTERFERENCE, HUYGENS’ PRINCIPLE, USES OF INTERFERENCE, LASER INTERFEROMETER, POLARIZATION, CLINICAL APPLICATIONS OF POLARIZATION

UNIT – 02
REFLECTION- LAWS, REFLECTION THROUGH PLANE MIRRORS, REFLECTION THROUGH SPHERICAL MIRRORS.REFRACTION OF LIGHT. REFRACTION- LAWS, REFRACTIVE INDEX, CRITICAL ANGLE, TOTAL INTERNAL REFLECTION. REFRACTION THROUGH VARIOUS SURFACES. POLychromatic EFFECTS, NOMENCLATURE OF PRISMS, ROTATING PRISMS, USES OF PRISMS

UNIT-03
LENSES-TYPES, FORMATION OF CONVEX AND CONCAVE LENSES. GEOMETRICAL CONSTRUCTION OF IMAGES, DETERMINATION OF OPTICAL CENTRE OF THE LENs, 3.5 IMAGE FORMED BY VARIOUS LENSES,SIZE AND POSITION OF IMAGE, CYLINDRICAL LENSES, COMBINATION OF LENSES

UNIT - 04
VISUAL ANGLE, VISUAL ACUITY, COMPONENTS OF VISUAL ACUITY, FACTORS AFFECTING VISUAL ACUITY, MEASUREMENT OF VISUAL ACUITY, TEST TYPES USED IN ADULTS, TEST TYPES USED IN CHILDREN, OBJECTIVE ASSESSMENT OF VISION, ASSESSMENT OF NEAR VISION

UNIT - 05
AXES OF THE EYE, VISUAL ANGLES, THE DIOPTRIC NOTATION OF LENSES (VERGENCE) OPTICAL SYSTEMS, REFRACTION BY COMBINATION OF LENSES, COMPOUND HOMOCENTRIC SYSTEMS, THICK LENSES

UNIT-06
OPTICAL ABERRATIONS OF LENSES, ABERRATIONS DEPENDING UPON THE LIGHT, MONOCHROMATIC ABERRATIONS, OPTICAL ABERRATIONS OF THE EYE-ABERRATIONS DEPENDING UPON THE LIGHT- MONOCHROMATIC ABERRATIONS, ANOMALIES AS A DIOPTRIC APPARATUS
UNIT - 07

GENERAL HISTORY, SYSTEMIC ILLNESS, TREATMENT HISTORY, PERSONAL AND PROFESSIONAL HISTORY, FAMILY HISTORY, HISTORY OF ALLERGIES, OCULAR HISTORY, CHIEF COMPLAINTS, HISTORY OF PRESENT ILLNESS, PAST HISTORY

UNIT - 08

VISUAL ACUITY, COLOUR VISION, EXAMINATION OF FACE, OCULAR ADNEXA, POSITION OF THE EYES, OCULAR MOVEMENTS Vinayaka Missions University, Directorate of Distance Education Salem India BACHELOR OF SCIENCE IN OPTOMETRY 3 Yr. OPTOMETRY PRACTICE(1050146)

UNIT - 09


UNIT - 10

NORMAL FUNDUS, COLOUR, TEXTURE, FUNDUS PATTERN, NERVE FIBRE PATTERN, RETINAL REFLEXES, OPTIC DISC, MACULA, RETINAL VESSELS. EXAMINATION OF RETINA, DISTANT DIRECT OPHTHALMOSCOPY, DIRECT OPHTHALMOSCOPY, BINOCULAR INDIRECT OPHTHALMOSCOPY, POSTERIOR FUNDUS LENSES, FUNDUS CAMERA, FUNDUS FLUORESCEIN ANGIOGRAPHY, INDOCYANINE GREEN

UNIT - 11

FLUORESCEIN STAINING, CONJUNCTIVAL SMEAR, LACRIMAL SYRINGING, THE INTRAOCULAR PRESSURE, KERATOMETER, PTOSIS EVALUATION, VISUAL FIELDS EXAMINATION, CONFRONTATION TEST, LISTER’S PERIMETER, SCOTOMETRY, AUTOMATED PERIMETRY

UNIT – 12

ELECTRO-PHYSIOLOGICAL TESTS, ELECTRO-RETINOGRAM, VISUAL EVOKED RESPONSE, ELECTRO-OCULOGRAM, DARK ADAPTATION, ULTRASONOGRAPHY, A-SCAN, B-SCAN, IMAGING INVESTIGATIONS, X-RAY, CT-SCAN, MRI, BIOPSY-EXCISION/LNCISION BIOPSY, FINE NEEDLE BIOPSY.