## Curriculum Outline

### First Semester

| Sl. No. | Course Titles | Hours/semester | | |
|---|---|---|---|---|
| | | Lecture | Practical | Total |
| MOP101 | Applied ocular biology | 45 | | 60 |
| MOP102 | Advanced Ocular Diagnostics & Management | 45 | | 60 |
| MOP103 | Research Methodology and Biostatistics | 30 | | 60 |
| MOP104 | Intellectual property rights[#] | 30 | | 60 |
| MOP105 | Research Project-1[#] | 45 | | 60 |
| MOP106 | Digital pedagogy and learning management[#] | 15 | 15 | 30 |
| MOP107 | General Clinics-1 | | 120 | 15 |
| MOP108 | Specialty Optometry Clinics-1 | | 120 | 45 |
| MOP109 | Community Outreach-1 | | 60 | 60 |
| **TOTAL** | | 210 | 315 | 525 |

#Non-University Exams

*First Semester*

**APPLIED OCULAR BIOLOGY**

| CL | CP | L | P |
|---|---|---|---|
| 3 | 0 | 45 | 0 |

**INSTRUCTOR IN CHARGE**: A postgraduate or PhD in basic sciences with relevant exposure to optometry.

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

**OBJECTIVES**: At the end of the semester, the student should be able to:

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

**TEXT BOOK AND REFERNCE BOOK:**

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

**PREREQUISITES**: Ocular Anatomy and Physiology, Biochemistry, Microbiology, Genetics, Immunology and Pathology

**COURSE PLAN:**

| Unit | Topic | Hours |
|---|---|---|
| 1 | Anatomy of Eye and Orbit: Osteology of orbit, Orbital contents – Extra Ocular Muscles- Blood vessels of the orbit – Cranial Nerves associated with eye and orbit –Ocular Adnexa – Muscle of eye lids and adjacent face - Anatomy of the visual pathway.<br>Physiology of Vision and the Visual System: Light detection and Dark adaptation – Visual acuity and contrast Sensitivity – Clinical Visual Electrophysiology – Color vision – Monocular versus Binocular vision – Ocular movement: Physiology – Psychophysical basis for clinical tests | 15 |
| 2 | Genetics: Chromosome and Cell division –Molecular genetics– Clinical Genetics –Population genetics–Gene cell differentiations and Cell based therapy: Molecular genetics and ophthalmology<br>Microbial Infections of the Eye: Introduction: Microbes in the environment - Host defense at the ocular surface: Physical barriers – Adaptive immunity to microbial infection – Ocular infections worldwide: viral, Bacterial, fungal, protozoan infections of the eye – Ocular infections in developing countries.<br>Pathology: Introduction – Cell and Tissue damage, Mechanism of cell death – Inflammation –Neoplasia – Hamartomas – Choristomas – Teratoma –Tumors | 15 |
| 3 | Biochemistry: Biochemistry of the ocular surface, tear film, lacrimal gland sections, mucus layer, the conjunctiva, the lids , cornea and sclera, uveal tract- Inborn errors of metabolism and the eye, Metabolic diseases<br>General and Ocular Pharmacology: Introduction - Pharmacokinetics– Pharmacodynamics –Mechanism of ocular drug absorptions –Routes of administration – Delivery methods - Drug Vehicles - Advanced ocular delivery systems – Ocular toxicity from systemic administrations of drugs<br>Immunology: Innate and Acquired immunity – Initial response of the host to injury – Acute and Chronic Inflammation – Development of adaptive immunity and immunological memory – Organization of immune system – Antigen recognition – T cell activation – The eye and the immune system | 15 |

**ADVANCED OCULAR DIAGNOSTICS AND MANAGEMENT**

| CL | CP | L | P |
|---|---|---|---|
| 3 | 0 | 45 | 0 |

**INSTRUCTOR IN CHARGE**: A postgraduate or PhD in basic sciences with relevant exposure to optometry.

**COURSE DESCRIPTION**: This course is designed to provide exposure to diagnostics to ocular conditions and management options for ocular diseases.

**OBJECTIVES**: At the end of the course the student will be able to:

1. Interpret the findings for diagnostics of ocular diagnostics
2. Demonstrate an understanding on management options for ocular diseases
3. Gain knowledge about management options for ocular diseases

**TEXT BOOK AND REFERENCE BOOK:**


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

**PREREQUISITES**: Ocular Anatomy and Physiology, Ocular Diseases, Optometric Instrumentation

**COURSE PLAN:**

| Unit | Topics | Hours |
|---|---|---|
| 1 | Ocular photography: External, Anterior (Slit lamp and Gonio photography), Posterior (Fundus Photography, Fundus Autofluorescence, Fundus Fluorescein Angiography, Indocyanine Green Angiography)<br>Ultrasonography: (Ultrasound biomicroscopy, A-scan ultrasonography, B-scan ultrasonography, Pachymetry)<br>Ocular Surface: (Meibography, Keratography, Corneal Biomechanics) | 10 |
| 2 | Anterior Segment Diagnostics: Confocal Microscopy, Specular microscopy, Corneal Topography, Corneal Tomography, Anterior Segment Optical Coherence Tomography, Pentacam, Aberrometry | 10 |
| 3 | Posterior Segment Diagnostics: Posterior Segment Optical Coherence Tomography (Spectral Domain OCT, Swept Source OCT, OCT Angiography), Ocular Electrodiagnostics (ERG, MfERG, VEP, EOG), Dark Adaptometry | 10 |
| 4 | Clinical management of ocular conditions: Overview of drugs used in treatment of ocular disease, Overview of laser and surgical interventions for ocular disease, Vertical Integration of all treatment options of ocular disease with special emphasis on optometric management | 15 |

**RESEARCH METHODOLOGY AND BIOSTATISTICS**

| CL | CP | L | P |
|---|---|---|---|
| 2 | 0 | 30 | 0 |

**INSTRUCTOR IN CHARGE**: Biostatistician/Epidemiologist or Higher optometry holder with experience in biostatistics and research methodology

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

**OBJECTIVES**: At the end of the course, the student should be able to:

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

**TEXT BOOK**:

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

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

**REFERENCE BOOKS:**

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

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

**PREREQUISITES**: Basic Biostatistics and Epidemiology.

**COURSE PLAN**

| Unit | Topics | Hours |
|---|---|---|
| 1 | Introduction to research methods, research strategies, Clinical study designs, sampling methods and sample size, tests for significance, association and causation. Ethics in research, Critical review of literature and consolidation, Writing a research question, Planning and implementing a research project, Data handling | 7 |
| 2 | Sampling and sample size, Sampling distributions: t, chi-square, F distributions; Hypothesis testing: null and alternative hypotheses, decision criteria, critical values, type I and type II errors, Meaning of statistical significance; Power of a test; One sample hypothesis testing: Normally distributed data: z, t and chi-square tests; Binomial proportion testing. Tests for normality, comparison of 2 means, comparison of proportions - demonstration with statistical tools. | 8 |
| 3 | Two sample hypothesis testing; Nonparametric methods: signed rank test, rank sum test; Kruskal-Wallis test; Analysis of variance. Comparison of multiple groups, ANOVA, multivariate modelling, Correlation - demonstration with statistical tools, Non-parametric tests, Mann-Whitney test, Kruskal Wallis, Friedman, Wilcoxon signed rank test - demonstration with statistical tools | 8 |
| 4 | Confounding and Bias, Regression – simple linear, logistic regression, multiple regression – demonstration with statistical tools. Qualitative research and questionnaire development. | 7 |

**INTELLECTUAL PROPERTY RIGHTS**

| CL | CP | L | P |
|---|---|---|---|
| 2 | 0 | 30 | 0 |

**INSTRUCTOR IN CHARGE**: Lawyer or Higher optometry holder with experience in medical law and practice

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

**OBJECTIVES**: At the end of the semester, the student should be able to:

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

**TEXT BOOK AND REFERENCE BOOKS**:

1. T. M. Murray, M. J. Mehlman. Encyclopedia of Ethical, Legal and Policy Issues in Biotechnology, Vol 2, John Wiley & Sons, 2010.
2. P. N. Cheremisinoff, R. P. Ouellette, R. M. Bartholomew, Biotechnology Applications and Research, Technomic Publishing Co., Inc. 1985.
3. D. Balasubramaniam, C. F. A. Bryce, K. Dharmalingam, J. Green, K. Jayaraman, Concepts in Biotechnology, 3/e University Press. 2004.
4. B. David, T. R. Jewell, R. G. Buiser, Biotechnology: Demystifying the Concepts1/e., Wesley Longman, USA, 2000.
5. Parulekar, S. D'Souza, Indian Patents Law – Legal & Business Implications, Macmillan India ltd. 2006.
6. L. Wadehra. Law Relating to Patents, Trademarks, Copyright, Designs & Geographical Indications, Universal law Publishing Pvt. Ltd., 2000.
7. P. Narayanan, Law of Copyright and Industrial Designs, 4/e., Eastern law House, Delhi. 2010.

**PREREQUISITES**: Medical law and Ethics.

**COURSE PLAN**

| Unit | Topics | Hours |
|---|---|---|
| 1 | COPYRIGHT: What is copyright? What is covered by copyright? How long does copyright last? Why protect copyright? RELATED RIGHTS: What are related rights?, Distinction between related rights and copyright?, Rights covered by copyright?<br>GEOGRAPHICAL INDICATIONS: What is a geographical indication? How is a geographical indication protected? Why protect geographical indications? | 10 |
| 2 | PATENTS: Patent and kind of inventions protected by a patent, Patent document, How to protect your inventions? Granting of patent, Rights of a patent, How extensive is patent protection?, Drafting and Filing of a patent.<br>INDUSTRIAL DESIGNS: What is an industrial design? How can industrial designs be protected? What kind of protection is provided by industrial designs? How long does the protection last? Why protect industrial designs? | 10 |
| 3 | TRADEMARKS: What is a trademark? Rights of trademark?, What kind of signs can be used as trademarks?, How is a trademark protected?, How is a trademark registered?, How long is a registered trademark protected for? Trade secrets and know-how agreements.<br>ENFORCEMENT OF INTELLECTUAL PROPERTY RIGHTS: Infringement of intellectual property rights, Enforcement Measures | 10 |

**RESEARCH PROJECT - I**

**INSTRUCTOR IN CHARGE**: M Optom with experience in handling Research Projects

| CL | CP | L | P |
|---|---|---|---|
| 3 | 0 | 45 | 0 |

**COURSE DESCRIPTION:**

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

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

**OBJECTIVE:**

Upon completion of this course, the learner will be able to:

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

**DIGITAL PEDAGOGY AND LEARNING MANAGEMENT**

| CL | CP | L | P |
|---|---|---|---|
| 1 | 0.5 | 15 | 15 |

**INSTRUCTOR IN CHARGE:** Academician or Higher optometry holder with adequate experience in teaching students

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

**OBJECTIVES**: At the end of the semester, the student should be able to:

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

**TEXT BOOK**:

1. J. A. Dent, R. M. Harden, A Practical Guide for Medical Teachers, 3/e., Churchill Livingstone, 2009.
2. T. M. Srinivasan, Use of Computers and Multimedia in Education. Horton, 2002.
3. M. D. Williams, Integrating Technology into Teaching and Learning: Concepts and Applications, Prentice Hall, 2000.
4. S. K. Mangal, Advanced educational psychology PHI Learning private Ltd., 2006

**COURSE PLAN:**

| Unit | Topic | Hours |
|---|---|---|
| 1 | Curriculum: Types of curricula- subject centered, learner centered curriculum, problem-based curriculum, competency/ outcome based curriculum and its importance<br><br>Learning and changing behaviour: Learning: nature, characteristics of learning -Theories of learning: classical and operant conditioning. System's Approach, Principles of adult learning, Learning process<br><br>Learning taxonomy- Bloom's taxonomy for cognitive domain, Krathwohl's affective domain taxonomy, Dave's Taxonomy for skill domain<br><br>Learning objectives: Program objectives, course and unit objectives, framework the learning objectives, SMART objectives, horizontal and vertical integration of objectives. | 4 |
| 2 | Types of learners: Visual, auditory, Readers and kinaesthetic learners.<br><br>Designing of teaching learning activities- Use the system's approach for instructional design, Learner centric system, developing a lesson plan and material for using active learning methods for a course.<br><br>Teaching learning methods such as: a. Didactic lectures, b. Small group teaching methods, c. Large group teaching methods, d. Case based and problem based learning, e. Simulations, f. Team based learning, g. Flipped classroom, h. Use of technology/ multimedia in teaching, i. Bed side / chair side teaching, clinical rotations, j. Reflective practice, k. Inter-professional education, l. Skill development, m. Project based learning, n. Self-directed learning (SDL) | 5 |

| | | |
|---|---|---|
| 3 | Assessment in higher education: Principles of assessment, planning for assessment, summative and formative assessments, performance indicators, various assessment tools such as: a. Long answer questions, b. Short answer questions, c. Multiple choice questions, d. Objective Structured Clinical Examination (OSCE), e. Objective Structured practical Examination (OSPE), f. Direct Observation of Procedural Skills (DOPS), g. Mini-Clinical Evaluation Exercise (Mini-CEX), h. Long Case Examination, i. Portfolios, j. Assignments- written/ oral, k. Self-assessment and peer assessment.<br><br>Assessment reports and feedback: types of feedbacks, importance, reflective practice<br><br>Evidence based teaching.<br><br>ICT: Definition, Meaning, Scope, Trends and significance in the context of Education, ICT for Effective Teaching and Learning, ICT in classroom, ICT for Professional Development.<br><br>Role of AIR in Education, Gyanvani, Countrywide Classroom, EDUSAT: Implications, ETV, Network. Evaluation of multimedia learning materials. | 6 |

**PRACTICALS:**

1. Frame the learning objectives course/program
2. Design an instructional module for given learning objective
3. Deliver teaching session using active learning methods
4. Mentor the undergraduates to develop their knowledge and clinical skills
5. Design a feedback questionnaire, collect and analyse the feedback for teaching conducted in classroom/clinics

**GENERAL CLINICS I**

| CL | CP | L | P |
|---|---|---|---|
| 0 | 4 | 0 | 120 |

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

**CLINICAL POSTINGS**:

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

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

**LEARNING OUTCOMES:** Upon completion of this course, the learners will be able to:

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

**SPECIALTY OPTOMETRY CLINICS - I**

| CL | CP | L | P |
|---|---|---|---|
| 0 | 4 | 0 | 120 |

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

**CLINICAL POSTINGS**:

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

**DIAGNOSTIC POSTINGS**:

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

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

**LEARNING OUTCOMES:**

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

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

**COMMUNITY OUTREACH SERVICES-I**

| CL | CP | L | P |
|---|---|---|---|
| 0 | 2 | 0 | 60 |

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

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

**COMMUNITY OUTREACH POSTINGS**:

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

**Second Semester**

| Sl. No. | Course Titles | Hours/semester | | |
|---|---|---|---|---|
| | | Lecture | Practical | Total |
| MOP201 | Specialized clinical optometry-Contact Lens-1 | 30 | | 30 |
| MOP202 | Specialized clinical optometry-Low Vision Care | 30 | | 30 |
| MOP203 | Elective 1# | 30 | | 30 |
| MOP204 | Research Project-2# | 60 | | 60 |
| MOP205 | General Clinics-2 | | 180 | 180 |
| MOP206 | Specialty Optometry Clinics-2 | | 120 | 120 |
| MOP207 | Community Outreach-2 | | 60 | 60 |
| | **TOTAL** | 150 | 360 | 510 |

#Non-University Exams

***Second Semester***

**SPECIALIZED CLINICAL OPTOMETRY – CONTACT LENS 1**

| CL | CP | L | P |
|---|---|---|---|
| 2 | 0 | 30 | 0 |

**INSTRUCTOR INCHARGE:** A postgraduate or PhD in Contact lens with adequate clinical exposure in contact lens clinics.

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

**OBJECTIVES:** At the end of the course the students will be able to:

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

**TEXT BOOK/REFERENCE BOOKS:**


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

**PREREQUISITES:** Ocular diseases**,** Basic Contact Lens

**COURSE PLAN**

| Unit | Topics | Hours |
|---|---|---|
| 1 | Anatomy and Physiology of the Cornea and related Structures<br>Tears and contact lenses | 4 |
| 2 | Optics and Lens Design<br>Contact Lens Materials<br>Clinical Instrumentation in contact lens practice | 4 |
| 3 | Soft contact lens fitting<br>Toric Contact lens fitting | 4 |
| 4 | Rigid Gas Permeable corneal lens fitting<br>Microbiology, Lens Care and Maintenance | 4 |
| 5 | Contact lens standards<br>Lens checking : Soft and Rigid | 4 |
| 6 | Contact lens complications | 4 |
| 7 | Special types of Contact lenses – diagnosis, surgery, protective, therapeutic, sports, partially sighted | 6 |

**SPECIALIZED CLINICAL OPTOMETRY – LOW VISION**

| CL | CP | L | P |
|---|---|---|---|
| 2 | 0 | 30 | 0 |

**INSTRUCTOR INCHARGE:** A postgraduate or PhD in Low vision/Rehabilitation with adequate clinical exposure in handling low vision clinic.

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

**OBJECTIVES** At the end of the course, students should be able to:

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

**TEXT BOOK:**

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

**REFERENCE BOOKS:**


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

**PREREQUISITES:** Ocular Diseases, Basic Low vision care

**COURSE PLAN**

| Unit | Topics | Hours |
|---|---|---|
| 1 | Visual Disorders – Medical Perspective<br>1. The Epidemiology of Vision Impairment<br>2. Vision Impairment in the pediatric population<br>3. Ocular Diseases : Age – Related Cataract, Glaucoma, ARMD, Diabetic retinopathy, Corneal Disorders, Ocular Trauma, Sensory Neuro-ophthalmology and Vision Impairment, Refractive Disorders | 5 |
| 2 | Visual Disorders – The Functional Perspective<br>1. Low Vision and Psychophysics<br>2. Visual Functioning in Pediatric Populations with Low Vision<br>3. Perceptual correlates of Optical Disorders<br>4. Functional aspects of Neural Visual Disorders of the eye and Brain<br>5. Visual Disorders and Performance of specific Tasks requiring vision | 5 |
| 3 | Optical and Non-Optical device<br>Field expanding systems and Assistive technology, Hand held minus lenses/reverse telescopes - optical principles, Reflecting mirrors, Use of Fresnel prisms, Peli lens model, Eccentric viewing training and Head Scanning Training, Computer software for visually impaired, Mobile software for visually impaired, Machines modified for helping visually impaired, perform activities of daily living without help, Large print items, auditory cues, Contrast Enhancement and Environmental modification | 5 |

| | | |
|---|---|---|
| 4 | Visual Disorders – The Psychosocial Perspective<br>1. Developmental perspectives – Youth<br>2. Vision Impairment and Cognition<br>3. Spatial orientation and Mobility of people with vision impairments<br>4. Social skills Issues in vision impairment<br>5. Communication and language : Issues and concerns<br>6. Developmental perspectives on Aging and vision loss<br>7. Vision and cognitive Functioning in old age | 5 |
| 5 | Interactions of Vision Impairment with other Disabilities and sensory Impairments.<br>1. Children with Multiple Impairments<br>2. Dual Vision and Hearing Impairment<br>3. Diabetes Mellitus and Vision Impairment<br>4. Vision Problems associated with Multiple Sclerosis<br>5. Vision Impairment related to Acquired Brain Injury<br>6. Vision and Dementia<br>7. Low Vision and HIV infection | 5 |
| 6 | The Environment and Vision Impairment: Towards Universal Design<br>1. Indian Disabilities act<br>2. Children's Environments<br>3. Environments of Older people<br>4. Outdoor environments<br>5. Lighting to enhance visual capabilities<br>6. Signage and way finding<br>7. Accessible Environments through Technology<br>Vision Enhancement Techniques: Optical and non-optical Vision Enhancement techniques | 5 |

**ELECTIVE 1**

| CL | CP | L | P |
|---|---|---|---|
| 2 | 0 | 30 | 0 |

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

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

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

**RESEARCH PROJECT - II**

| CL | CP | L | P |
|---|---|---|---|
| 4 | 0 | 60 | 0 |

**INSTRUCTOR IN CHARGE**: M Optom with experience in handling

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

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

**OBJECTIVE:**

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

**GENERAL CLINICS II**

| CL | CP | L | P |
|---|---|---|---|
| 0 | 6 | 0 | 180 |

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

**CLINICAL POSTINGS**:

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

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

**LEARNING OUTCOMES:**

1. Upon completion of this course, the learners will be able to:
2. Appreciate the diversities pertaining to the ocular problems among patients presenting to the hospital
3. Handle the patients with their applied knowledge

**SPECIALTY OPTOMETRY CLINICS - II**

| CL | CP | L | P |
|---|---|---|---|
| 0 | 4 | 0 | 120 |

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

**CLINICAL POSTINGS**:

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

**DIAGNOSTIC POSTINGS**:

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

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

**LEARNING OUTCOMES:**

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

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

**COMMUNITY OUTREACH SERVICES-II**

| CL | CP | L | P |
|---|---|---|---|
| 0 | 2 | 0 | 60 |

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

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

**COMMUNITY OUTREACH POSTINGS**:

1) School Eye Screening

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