VELS

INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)
(Deemed to be University Estd. u/s 3 of the UGC Act, 1956)
PALLAVARAM - CHENNAI
ACCREDITED BY NAAC WITH 'A' GRADE
Marching Beyond 30 Years Successfully

MASTER OF OPTOMETRY

Curriculum and Syllabus

(Based on Choice Based Credit System (CBCS)
and
Outcome Based Education (OBE)

School of Allied Health Science

MINUTES OF BOARD OF STUDIES

The meeting of the Board of Studies in School of Allied Health Sciences , VISTAS held on **31-05-2024 at 11am** to discuss the Rules and Regulations, **Framework of PG Program, Curriculum & Syllabus** of the following **newly introduced Program –Master of Optometry** which to be followed from academic year 2024– 2025.

The following members were present for the BOS meeting

S. No	Name of the Board Member	Designation	Institute / Industry	Role
Internal Members				
1	Mr.K.Kishore Kanna M.Sc(Radiology)	Vice Principal	Vels Institute of Science, Technology & Advanced Studies (VISTAS), Chennai	Chairperson
2	Mrs.Jebaseeli V M.Sc(Biochemistry)	Assistant Coordinator	Vels Institute of Science, Technology & Advanced Studies (VISTAS), Chennai	Member
3	Ms. Yuvashree. A M.(Optometry)	Assit.Professor	Vels Institute of Science, Technology & Advanced Studies (VISTAS), Chennai	Member
External Expert Members				
1	Dr.Yamini.B M.Sc.Echocardiogaphy Ph.D. (Cardiology)	Asst.Profesor &Clinical Coordinator	Faculty of Allied Health Sciences, KM Cherian Heart Foundation-Frontier Life Line Hospitals.	Member
2	Dr.M.Radhika M.Sc MLT, PhD (Biochemistry)	Assistant Professor	Sri Ramachandra Institute of Higher Education & Research, Porur,Chennai-116	Member
3	Dr.A Mani, M.Sc,Ph.D (Ophthalmology)	Associate Professor	Chettinad Academy of Research and Education Kelambakkam.	Member
4	Mr.Vyshak M.Sc(Radiology)	Associate Professo	ACS Medical College & Hospital,Velapanchavadi	Member

AGENDA OF THE MEETING

Item No.	Particulars
BoS / 2024/ OPTO / PG / 1.1	Develop curriculum based on Learning Outcome Based Curriculum Framework (LOCF) /Choice Based Credit System(CBCS)
BoS / 2024/ OPTO / PG / 1.2	Objective of New Program
BoS / 2024/ OPTO / PG / 1.3	Feedback from Stakeholders to ensure that the syllabus of the courses include the state-of-the-art technologies focusing on skill development, employability,band entrepreneurship
BoS / 2024/ OPTO / PG / 1.4	To review the UGC policy for CBCS and LOCF curriculum

Item No:1 BOS / 2024 / OPTO / PG / 1.1

Develop curriculum based on Learning Outcome Based Curriculum Framework (LOCF) /Choice Based Credit System(CBCS)

- To develop the curriculum and syllabi based on the guidelines of UGC and the principles of Outcome Based Education (OBE)/Learning Outcome Based Curriculum Framework (LOCF).
- To implement the guidelines and suggestions of the new education policy.
- To consider the Competencies and Performance Indicators of the Master of Optometry programmedefined as per the recommendations of the National Model Curriculum.
- To enhance the Course Outcomes (CO) of all the courses by focusing on skill development, employability, and entrepreneurship.
- To consider the mapping of CO to the Program Outcomes (PO) and Programme Specific Outcomes (PSO) of all the courses using the defined Competencies and Performance Indicators.

Minutes are Reviewed and Confirmed

Item No : 2 BOS / 2024 / OPTO / PG / 1.2

Objective of New Program

- To provide the perfect balance and academic intensity between theoretical and practical learning.
- To design the curriculum focusing on Activities/ Content with direct on Employability/Competency/ Entrepreneurship/ Skill Development / Interdisciplinary
- To demonstrate and adopt technical skill set and in depth of knowledge.
- To aid students to refine their skills.
- To discover various techniques and develop their knowledge through experimental learning.
- To deliver the Program as per UGC norms.

Item No : 3 BOS / 2024 / OPTO / PG / 1.3

Feedback from Stakeholders to ensure that the syllabus of the courses include the state-of-the-art technologies focusing on skill development, employability, and entrepreneurship

External Members: The course is well framed and the curriculum is elaborate and focuses on inculcating the skills and knowledge required for students in the medical world..

Academic Experts: The course covers all the basic inputs to provide expertise training in the medical world. The Competencies and Performance Indicators (PI) are well defined for both the programmes. The CO-PO mapping is based on Knowledge Levels and is well justified.

The course explores a wide range of careers in the medical world through internships and enables students to inculcate practical skills for Entrepreneurship.

Minutes are Reviewed and Confirmed

Item No : 4 BOS / 2024/OPTO / PG / 1.4

To review the UGC policy for CBCS and LOCF curriculum

- Resolved that the Curriculum & Syllabus for the Master of Optometry programme (Regulation 2024), designed as per the Learning outcome-based curriculum framework (LOCF) guidelines of UGC, effective from the Academic Year 2024-2025 be approved.

Resolution:

The members of the BOS adopted the following resolutions: Resolved to recommend that the Curriculum and Syllabus developed for Master of Optometry is based on Learning Outcome Based Curriculum Framework (LOCF) and Choice Based Credit System (CBCS). Newly introduced UG Program andcourses focused on Activities Content with direct on Employability / Competency/ Entrepreneurship/ Skill Development / Interdisciplinary and new courses introduced during the Academic Year – 2024– 2025 is designed as per the guidelines and Model Curriculum Framework of UGC. The Board of studies approved the PG curriculum for the academic year 2024 – 2025 is enclosed **Annexures .**

New Curriculum and Syllabi of PG Program courses focused on Activities / /Content with direct focus on Employability / Competency/ Entrepreneurship / Skill development/Interdisciplinary/ Cross Cutting Issues enclosed in Annexures

S. No	Name of the Board Member	Designation	Institute / Industry	Signature
Internal Members				
1	Mr.Kishore Kannan.K M.Sc.(Radiology)	Vice Principal	Vels Institute of Science, Technology & Advanced Studies (VISTAS), Chennai	
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4	Mr.Vyshak M.Sc(Radiology)	Associate Professor	ACS Medical College & Hospital,Velapanchavadi	

Vels Institute of Science, Technology and Advanced Studies (VISTAS)

School of Allied Health Sciences

Manjankaranai, Thiruvallur Dist.

SPECIFIC REGULATIONS FOR
MASTER OF OPTOMETRY PROGRAMME-2024

1. SHORT TITLE ANDCOMMENCEMENT:

These regulations shall be called "Specific Regulations for the Master of Optometry Program of Vels Institute of Science Technology and Advanced Studies, Deemed to be University u/s 3 of UGC act 1956.These Regulations are applicable to the students who are admitted to the Master of Optometry in this University.

As per the decision of the Academic Council of this University, these regulations have been prepared by adopting the regulations of the VISTAS.

2. AIMS

The aim of the postgraduate Optometry is to:

To provide holistic knowledge about clinical care, communication, membership of a multidisciplinary health care team, which is committed to professional excellence, social accountability, leadership quality about lifelong learning.

3. OBJECTIVES

On completion of the four years Master of Optometry Programmes the graduates will

1. Develop skills to provide comprehensive eye examination
2. To acquire knowledge on ocular structures, its functions and pathological changes
3. To carryout ophthalmic investigations
4. To impart knowledge with regard to common eye diseases
5. To impart knowledge on treatment modalities from the perspective of counselling Acquire knowledge about the referral guidelines for ocular and systemic conditions Be able to correct refractive error and provide spectacle prescription
6. Able to fit, evaluate, prescribe and dispense contact lenses for refractive correction and other ocular conditions
7. Assess the low vision and provide comprehensive low vision care
8. Acquire adequate knowledge to develop skill in manufacturing of spectacle lenses contact lenses and low vision devices.

9. Able to do complete binocular vision assessment, manage non-strabismus binocular vision anomalies and refer

condition which warrants surgery

10. Assess the visual demands for various occupations and match into the visual capabilities. Also be able to advice on eye safety wear for various occupations.
11. Interpret knowledge and skill for early detection of various ocular conditions and pathologies – Refractive error, Strabismus, Cataract, Diabetic retinopathy, Glaucoma etc.
12. Apply knowledge of counselling on visual/ocular hygiene, nutritional and Environmental modifications

4. ELIGIBILITY FOR ADMISSION

- A Candidate desiring to join the Master of Optometry should have completed B.Sc optometry / Bachelor of Optometry from any recognized university.
- No upper age limit for Admission
- Selection of the candidates would be based on the merit of the entrance examination held by VISTAS.

5. DURATION OF THE COURSE:

The duration of the Master of Optometry Degree course shall be 2 Years full- time programme comprising 4 Semesters under Choice based Credit System.

6. MEDIUM OF INSTRUCTION:

English shall be the medium of instruction for all subjects of study and examinations will be conducted only in English.

7. COMMENCEMENT OF THE COURSE:

The course shall commence from September of the academic year.

8. WORKING DAYS IN A SEMESTER:

Each semester shall consist of not less than 100 working days and each academic year shall have a total of 200 working days

9. REGISTRATION

A Candidate admitted to the course shall be registered by remitting the prescribed fees along with the Application form for registration duly filled within the stipulated dates.

10. COMMENCEMENT OF THE EXAMINATIONS:

Regular Semester Examinations will commence from last week of November and last week of April.

If the date of commencement of the examination falls on Saturday, Sunday or declared Public Holidays, the examination shall begin on the next working day.

11. SUBMISSION OF LABORATORY RECORD NOTE BOOKS:

At the time of practical examination, each candidate shall submit to the examiners his / her laboratory note books duly certified by the Head of the Department as a bonafide record of the work done by the candidate.

12. INTERNAL ASSESSMENT:

a) A minimum of two written internal assessment examinations shall be conducted in

each subject during a semester and the Best / Average marks of two examinations shall be taken into consideration for the award of internal marks.

b) A model practical examinations shall be conducted in each subject (wherever practical have been included in the curriculum) shall be taken into consideration for award of internal marks in practical.
c) Tests will be conducted giving sufficient time for preparation.
d) No repeat, reschedule and postponement of the assessment date are permitted. Students shall compulsorily attend any two continuous assessments

13. ATTENDANCE REQUIRED FOR ADMISSION TO EXAMINATIONS:

a) No candidate shall be permitted to appear for the University examinations, unless he/she attends the course for the prescribed period.
b) Every candidate is required to put in a minimum of 80% of attendance both in theory and practical separately in each subject for admission to the examination.
c) A candidate lacking in the prescribed attendance in any subject in theory and/or practical shall not be admitted to the entire examination.

14. CONDONING LACK OF ATTENDANCE:

Condoning of shortage of attendance up to a maximum of 10% in the prescribed eligible attendance for admission to year end examination rests with the discretionary power of the Vice Chancellor. A Candidate lacking in attendance should submit an application in the prescribed form and remit the stipulated fee, 15days prior to the commencement of the theory examination, The Head of the Department should satisfy himself on the reasonableness of the candidate's request while forwarding the application of the candidate to the Controller of Examinations, who would obtain the Vice– Chancellor's approval for admission to the examination. No application would be accepted if it is not forwarded through proper channel.

Condoning lack of attendance should be taken up for consideration under the following circumstances:-

a. Any illness affecting the candidate Candidates should submit a medical certificate from registered medical practitioners.

b. Any unforeseen tragedy in the family. The parents/guardian should give in writing about what had happened.

c. Participation in National Service Scheme and other co-curricular activities representing the University.

15. RE-ADMISSION AFTER BREAK OF STUDY:

A separate regulation is available for all the UG/PG courses of this university for the readmission of candidates after a break of study.

16. YEAR END EXAMINATIONS:

1. Commencement of the Examination will be in November /April
2. If the date of commencement falls on Saturdays, Sundays or declared public holidays, the examination shall begin on the next working day.
3. The duration of the examination of each subject is 3hours.
4. Carryover of failed subjects.
   a. A candidate has to pass in theory and practical examinations separately in each of the subject.
   b. If a candidate fails in either theory or practical of the subjects, he/she has to reappear for both the Theory and Practical.
   c. The candidate if fails can be permitted for admission to next year.

17. REVALUATION/RETOTALLING OF ANSWER PAPERS:

There is provision for revaluation of the answer papers of failed candidates in any examination. However, the failed candidates cannot apply for retotaling.

18. CREDITS:

Credits will be assigned on the basis of the lectures (L) /tutorials (T) Clinical Training (CR) laboratory work (P) /Research Project (RP) and other form of learning in a 15- 20 week schedule.

- L- One credit for one hour lecture per week (1 credit = 15 hours)
- P/T – One credit for every two hours of laboratory or practical (1 credit = 30 hours)
- CR – One credit for every two hours of Clinical Training/Clinical Rotation/Posing (1 credit = 30 hours)
- RP – One credit for every two hours of Research Project per week – Max Credit 20-25 (1 credit =30 hours)

19. GRADING SYSTEM:

Based on the performance, each student shall be awarded a final grade at the end of the semester for each course. Absolute grading is used by converting the marks to grade, based on pre-determined class intervals.

UGC 10-point grading system is used with pass grade modified.

Letter Grade	**Grade Point**	**Range of Marks***
O (Outstanding)	10	85% & above
A+ (Excellent)	9	80-84.99%
A (Very Good)	8	75-79.99%
B+ (Good)	7	65-74.99%
B (Above Average)	6	60-64.99%
C (Average)	5	50-59.99%
P(Pass)	-	>50%
F (Fail) / RA (Reappear)	0	<50%
AB (Absent)	0	0

1. A candidate is declared to have pass in a course if he /she secures a minimum 50% marks the university theory & practical Examinations separately & 50% in aggregate of university theory/practical & Internal assessment put together

Computation of Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

SPGA is the weighted average of the grade points obtained in all courses by the student during the semester

SGPA Computation:

$$SGPA = \frac{\sum_i^n (C_i \times (GP)_i}{\sum^n C_i}$$

Where C_i - credits for the course, $(GP)_i$ - the grade point obtained for the i^{th} course , n – total number of courses and the sum is over all the courses taken in that semester, including those in which the students has secured "F" and "Ab" grades.

CGPA Computation:

Computation of CGPA:

CGPA is calculated with SGPA of all semesters to two decimal points and is indicated in final grade in mark card/transcript showing grades of all 8 semesters and their courses/subjects.

$$CGPA = \frac{\sum_i^r S_i \times (SGPA)_i}{\sum_i^r S_i}$$

where:-S_i- sum of credits in i^{th} semester , $(SGPA)_i$- semester grade point average earned in i^{th} semester and r- number of semester and the sum is over all the semesters under consideration. The cumulative grade point average (CGPA) is calculated by consideration all the courses taken from the first semester onwards for regular students and from third semester onwards taken for lateral entry students.

20. CLASSIFICATION OF SUCCESSFUL CANDIDATES

The CGPA arrived at the completion of the course shall be the criteria for the classification of successful candidates as below:

Cumulative Grades and GradePoints

Letter Grade	Grade Point	Range of Marks*
O (Outstanding)	10	85% & above
A+ (Excellent)	9	80-84.99%
A (Very Good)	8	75-79.99%
B+ (Good)	7	65-74.99%
B (Above Average)	6	60-64.99%
C (Average)	5	50-59.99%
P(Pass)	-	>50%
F (Fail) / RA (Reappear)	0	<50%
AB (Absent)	0	0

a. Successful candidates who secure 75% marks and above as a course aggregate in the first appearance taking University theory, practical, project / dissertation evaluation and viva shall alone be awarded Distinction. This will also apply for award of University rank.

b. Successful candidates who secure 60% marks and above as a course aggregate in the University theory, practical, project/dissertation evaluation and viva shall be awarded First Class.

c. All others who secure 40-59% in gross percentage will be classified to have passed in Second Class.

21. PATTERN OF QUESTION PAPER FOR UNIVERSITY EXAMINATON:

EXAMINATION QUESTION PAPER PATTERN

Essay	**2 x 15**	**=30 Marks**
Short Notes	**7 x 5**	**=35Marks**
ShortAnswers	**5 x 2**	**=10 Marks**
Total		**75 Marks**

Internal Split up – Theory

1. Continuous Assessment: 10 Marks

S.no	Continuous Assessment	Marks
1	Attendance	5
2	Assignment	5

2. Internal Assessment: 15 marks Two Sessional Exams per Course

Internal Split up – Practical

1. **Continuous Assessment: 20 Marks**

S.no	Continuous Assessment	Marks
1	Seminar	10
2	Record note Book	10

2. Model Practical Examination: 30 Marks

22. GRACE MARKS

Maximum of 8 grace marks for each subject is permitted, and grace marks should not exceed 8 marks in each subjects for one academic year in theory paper only.

23. MARKS QUALIFING FOR PASS

A candidate is declared to have passed in a course if he/she secures a minimum of 50% marks in university theory and practical examinations separately and 50% in aggregate of University theory /practical and internal assessment put together.

Master of Optometry

VISION OF THE MASTER OF OPTOMETRY DEPARTMENT:

Master of Optometry course syllabus offers theoretical, core, elective, and practical aspects of the study. The Optometry program encompasses a wide array of subjects, each designed to prepare students for the diverse roles they may undertake in their professional careers. The curriculum is meticulously structured to ensure that students not only gain a solid foundation in the fundamental concepts of optometry but also have the opportunity to delve into specialized areas of study.

Our vision is to empower our students with the knowledge, skills, and ethical grounding needed to excel in their chosen careers and contribute positively to the field of healthcare. We strive to foster an environment of learning and innovation, where students are encouraged to explore, question, and apply their knowledge in practical settings.

MISSION OF THE MASTER OF OPTOMETRY DEPARTMENT:

1. To establish and maintain high standards of OPTOMETRY education & training.
2. To ensure that the programmes offered produce graduates with knowledge, skills and competencies that are both locally relevant and internationally competitive.
3. To apply the core principles of transformation in discipline activities, programmes and action plans.
4. To engage in strategic community partnerships towards the integration of social accountability into the entire programme.

PROGRAM EDUCATIONAL OBJECTIVES (PEO) :

After the completion of the program, MASTER OF OPTOMETRY graduates will be able to,

1. Conceptualized Learning
2. Practicals & Training
3. Presentations
4. Group Projects
5. Lab Works
6. Research Projects

PROGRAMME OUTCOMES (PO):

Graduates in **MASTER OF OPTOMETRY** will acquire and possess ability to Working in the nutritional and environmental counselling domain.

- Efficiency in using modern techniques and technologies for providing vision care.
- Demonstrating professional and clinical competence in the practice.
- Strengthening the critical acumen of students to work efficiently in inter-disciplinary and multi- disciplinary health care projects

- Nurturing their skills and preparing them for the optical clinic industry & trade

PROGRAMME SPECIFIC OBJECTIVES (PSO) :

At the completion of programme, MASTER OF OPTOMETRY graduates will

1. Able to correct refractive error and provide spectacle prescription
2. Able to fit, evaluate, prescribe and dispense contact lenses for refractive correction and ocular conditions
3. Able to assess the low vision and provide comprehensive low vision care
4. Research related to eye care

PROGRAM OUTCOMES:

Develop expertise in assessment, evaluation, planning and intervention in achieving eye care needs of the Indian society.

Actively participate in community optometry programs to achieve the goals of Vision 2020 and the national program for prevention of blindness. Effectively organise and participate in vision screening eye camps to help control blindness.

Practice independently as a primary eye care practitioner and render eye care services for the benefit of the society.

Maintain collaborative relationship with members of other disciplines to improve health care.

Interest in lifelong learning for personal and professional advancement.

MASTER OF OPTOMETRY CURRICULUM

SEMESTER 1

Sl.No.	Category	Course Titles	Hours/Credits							Maximum Marks				
			Lecture		Tutorial		Practical		Total	IA		UA		Total
			Hours	Credits	Hours	Credits	Hours	Credits	Credits	Theory	Practical/Viva	Theory	Practical/Viva	
1.1	Program Core	Epidemiology & Community Eye Care	60	4	30	1	-	-	5	25	-	75	-	100
1.2	Program Core	Ocular Diseases & Diagnostics I	60	4	30	1	60	2	7	25	50	75	50	200
1.3	Program Core	Research Project	-	-	60	2	-	-	2	50	50	-		100
1.4	Program Core	Clinical Optometry (General)	-	-	120	4	-	-	4	-	100	-	-	100
1.5	Program Core	Biostatistics and Research Methodology	45	3	30	1	-	-	4	25	-	75	-	100
								Total	**22**			**Total**		**600**

SEMESTER 2

Sl.No.	Category	Course Titles	Hours/Credits							Maximum Marks				
			Lecture		Tutorial		Practical		Total	IA		UA		Total
			Hours	Credits	Hours	Credits	Hours	Credits	Credits	Theory	Practical/Viva	Theory	Practical/Viva	
2.1	Program Core	Ocular Diseases & Diagnostics II Theory	30	2	30	1	30	1	4	25	50	75	50	200
2.2	Program Core	Advanced Contact Lens I Theory	45	3	30	1	30	1	5	25	50	75	50	200
2.3	Program Core	Padiatric Optometry & Binocular Vision Theory	45	3	30	1	30	1	5	25	50	75	50	200
2.4	Program Core	Low Vision & Geriatric optometry Theory	45	3	30	1	30	1	5	25	50	75	50	200
2.5	Program elective	Sports Vision	30	2	-	-	-	-	2	100	-	-	-	100
2.5	Program Core	Research Project			30	1	-	-	1	50	50	-	-	100
2.6	Program Core	Clinical Optometry (General)	-	-	-	-	60	2	2	50	50	-	-	100
2.7	Program Core	Clinical Optometry (Speciality)			-	-	60	2	2	50	50	-	-	100
								TOTAL	**26**				**TOTAL**	1200

SEMESTER 3

Sl.No.	Category	Course Titles	Hours/Credits							Maximum Marks				
			Lecture		Tutorial		Practical		Total	IA		UA		Total
			Hours	Credits	Hours	Credits	Hours	Credits	Credits	Theory	Practical/Viva	Theory	Practical/Viva	
3.1	Program Core	Advanced Contact Lens II Theory	45	3	30	1	30	1	5	25	50	75	50	200
3.2	Program Core	Low Vision Care & Rehabilitation Theory	45	3	30	1	30	1	5	25	50	75	50	200
3.3	ProgramElective	Patient care	30	2	-	-	-	-	2	100	-	-	-	100
3.4	Program Core	Research Project			60	2			2	50	50	-		100
3.5	Program Core	Clinical Optometry (General)					90	3	3	50	50	-	-	100
3.6	Program Core	Clinical Optometry (Speciality)					90	3	3	50	50	-	-	100
Total									**20**	**Total**				**800**

SEMESTER 4

Sl.No.	Category	Course Titles	Hours/Credits							Maximum Marks				
			Lecture		Tutorial		Practical		Total	IA		UA		Total
			Hours	Credits	Hours	Credits	Hours	Credits	Credits	Theory	Practical/Viva	Theory	Practical/Viva	
4.1	Program Core	Occupational optometry	45	3	30	1	30	1	5	25	50	75	50	200
4.2	Program Core	Vision Therapy	45	3	30	1	30	1	5	-	50	-	50	200
4.3	Program Core	Seminars, Journal Clubs And Group Discussions	-	-	-	-	120	4	4	-	50	-	50	100
4.4	Program elective	Dissertation/Project	45	3	-	-	-	-	3	100	-	-	-	100
4.5	Program elective	Recent advances in Optometry	30	2					2	100	-	-	-	100
4.6	Program Lab	Clinical Optometry (General And Speciality)					90	3	3	50	50	-	-	100
TOTAL									22	TOTAL				800

FIRST SEMESTER

EPIDEMIOLOGY AND COMMUNITY EYE CARE

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

1. Basic s of ocular epidemiology and presents details on various eye diseases.
2. It also introduces the students to the concepts of preventive measures and to inculcate the theoretical knowledge and clinical exposure of community optometry.
3. Thorough understanding of epidemiological concepts.
4. Thorough understanding of conducting of screening for specific eye conditions, and resultant implications through theoretical and practical exposure.

COURSE PLAN

1. Prevalence, incidence and distribution of visual impairment
2. Methodology
   2.1 Basics of Epidemiology study methods
   2.2 Types of study designs
   2.3 Screening for visual disorders
3. Childhood blindness
4. Refractive errors and presbyopia
5. Age related cataract
6. Low Vision
7. Diabetic retinopathy
8. Glaucoma
9. Age related Macular Degeneration
10. Vitamin A deficiency
11. Corneal and external diseases
12. Prevention strategies
13. Concept of Health and Disease
14. Principles of Epidemiology and Epidemiological Methods
15. Screening for Eye Disease – Refractive errors, Low Vision, Cataract, Diabetic retinopathy,Glaucoma, Amblyopia, Squint.
16. Blindness
17. Health Information and Basic Medical Statistics
18. Communication for Health Education
19. Health Planning and Management
20. Health care of community
21. How to plan and implement Vision2020

TEXT BOOKS: Epidemiology of eye diseases: Johnson and Gordon

OCULAR DISEASES AND DIAGNOSTICS - I

COURSE OBJECTIVES:

Evidence based approach to Diagnosis, Clinical decision making, Management and co management of anterior segment ocular diseases. Developing more reading ability of scientific journals for more evidence based management with recent understanding of diseases.

1. Ability to perform clinical decision making for Ocular abnormalities
2. Ability to perform and interpret corneal diagnostics tests
3. Ability to perform pre and post Lasik evaluation
4. Ability to interpret glaucoma diagnostic reports

5. Ability to perform anterior segment photography
6. Ability to manage and co-manage therapeutics for anterior segment
7. Referral criteria

COURSE PLAN:

1. Refresher of anterior segment ocular diseases, diagnosis and therapeutics
2. Refresher of glaucoma diagnosis and therapeutics
3. Surgical treatment of anterior segment diseases
4. Anterior segment Diagnostics
    4.1 Specular Microscopy
    4.2 Topography
    4.3 Corneal Hysteresis
    4.4 Orbscan, Pentacam
    4.5 Pachymetry
    4.6 Abberometry
    4.7 AS OCT
    4.8 HRT
    4.9 GDx
    4.10 ONH evaluation
    4.11 Gonioscopy
    4.12 Fluoroscein Angiography
    4.13 Refractive surgery
    4.14 Cataract evaluation

PRACTICAL:

1. Hands on training for above listed equipments tests and their interpretation

TEXT/ REFERENCE BOOKS:

1. Clinical Ophthalmology: Jack J Kanski
2. Diagnostics and imaging techniques in Ophthalmology: Amar Agarwal

BIOSTATISTICS AND RESEARCH METHODOLOGY

COURSE OBJECTIVES:

At the conclusion of the course, the students will have,

1. The knowledge of data collection, statistical application and finally, presentation of the statistical data.
2. Ability to write research proposal/grant application
3. Ability to do statistical analysis
4. Ability to write research articles (Medical writing)
5. Ability to critically evaluate the research material

• What is statistics – Importance of statistics in behavioural sciences Descriptive statistics and inferential statistics – Usefulness of quantification in behavioural sciences
• Measurements – Scales of measurements – Nominal, Ordinal, Interval and Ratio scales.
• Data collection – Classification of data – Class intervals – Continuous and discrete measurements – Drawing frequency polygon – types of frequency polygon – Histogram.
• Cumulative frequency curve – Ogives – Drawing inference fromgraph.
• Measures of central tendency – Need – types: Mean, Median, Mode – Working out these

measures with illustrations.
• Measures of variability – Need – Types: Range, Quartile deviation, Average deviation, Standard deviation, Variance – Interpretation.
• Normal distribution – General properties of normal distribution – Theory of probability – Illustration of normal distribution – area under the normal probability curve.
• Variants from the normal distribution – skewness – Quantitative measurement of skewness – kurtosis – measurement of kurtosis – factors contributing for non- normal distribution.
• Correlation – historical contribution – meaning of correlation – types: Product, moment, content correlation, variation of product, movement correlation, rank correlation, Regression analysis. Tests of significance- need for – significance of the mean – sampling error – significance of differences between means – interpretation of probability levels – small samples – large samples.

TEXT /REFERENCE BOOKS:

1. Methods in Biostatistics by B.K Mahajan
2. Probability and Statistics by Murray
3. Epidemiology of Eye Diseases, by Gordon and Drawin
4. Research Methodology by SM Israni

RESEARCH PROJECT

Students will prepare the protocol during this semester after doing extensive literature search. Each student will be reporting to guide/supervisor who helps the student to go about in systematically.

Research proposal need to be presented in front of the experts before going ahead with data collection. In institute, which has Institute research board and ethics committee student can be encouraged to present the proposal in it.

CLINICAL OPTOMETRY - GENERAL

OBJECTIVES:

The objective of clinics in this semester is to be able to examine the eye and understand the all eye procedures with clinical management.

An approximate of guided 240 hours needs to be completed in this semester. The students will be by rotation go to community clinics, Campus clinics, and associated hospital and optical / optometric clinics.

The logbook has to be maintained and case sheets of each subject in the semester with complete management and follow up are mandatory for submission at the end of the semester.

The log book needs to be signed by the supervisor during every visit.

No case record will be considered without the supervisor's signature

SECOND SEMESTER

OCULAR DISEASES AND DIAGNOSTICS – II

COURSE OBJECTIVES: Evidence based approach to Diagnosis, Clinical decision Making, Management and co management of posterior segment diseases. Developing more reading ability of scientific journals for more evidence based management with recent understanding of diseases.

1. Ability to perform electro diagnostic procedures and interpret electro diagnostic reports
2. Ability to perform stereoscopic fundus photography
3. Ability to use Ocular photography as tool for evidence based clinical decision making and progression analysis
4. Ability to perform posterior segment photography
5. Ability to manage and co-manage diseases and disorders of posterior segment

COURSE PLAN:

1. Refresher of posterior segment ocular diseases, diagnosis and therapeutics
2. Surgical treatment of posterior segment diseases
    - 2.1 Posterior segment Diagnostics
    - 2.2 ERG
    - 2.3 EOG
    - 2.4 VEP
    - 2.5 OCT
    - 2.6 Fundus photography
    - 2.7 Neuro optometric diseases and disorders

PRACTICAL:

1. Hands on training for above listed equipment's and their interpretation

TEXT/ REFERENCE BOOKS:

1. Clinical Ophthalmology: Jack J Kanski
2. Diagnostics and imaging techniques in Ophthalmology: Amar Agarwal

ADVANCED CONTACT LENSES – I

COURSE OBJECTIVES: Upon completion of the course, the student should be able to understand the corneal oxygen requirements and recommend the best suitable contact lens for a particular condition. Management of ocular complications with contact lenses. Understand contact lens fitting for compromised corneas and keratoconus. The student should also be able to understand the fitting philosophy of orthokeratology and myopia control.

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

COURSE PLAN

1. Anatomy and Physiology of the Cornea and related Structures
2. Contact Lens Materials
3. Microbiology, Lens Care and Maintenance
4. Tears and contact lenses
5. Optics and Lens Design
6. Clinical Instrumentation in contact lens practice
7. Rigid Gas Permeable corneal lens fitting
8. Soft contact lens fitting
9. Toric Contact lens fitting
10. Lens care regimen
11. Contact lens standards
12. Lens checking: Soft and Rigid
13. Contact lens complications
14. Special types of Contact lenses – diagnosis, surgery, protective, therapeutic, sports, partially Sighted

PRACTICAL:

1. Hands on training about all the contact lens tests and fitting including speciality contact lens.

TEXT/ REFERENCE BOOKS:

1. IACLE modules
2. Contact lenses – Stone and Philips

PEDIATRIC OPTOMETRY AND BINOCULAR VISION

COURSE OBJECTIVES: Upon completion of the course, the student should be able to understand the, basic concept behind visual perception, binocular vision anomalies and management and co- management of strabismic, non-strabismic binocular vision disorders and amblyopia.

1. Ability to diagnose and manage and co-manage binocular vision anomalies
2. Ability to co-manage visual perceptual anomalies
3. Ability to manage diplopia, suppression and ARC
4. Ability to manage amblyopia

COURSE PLAN:

1. Refractive Development:
    - 1.1 Early Refractive Development
    - 1.2 Visually Guided control of Refractive State: Animal Studies
    - 1.3 Infant Accommodation and Convergence
2. Oculomotor Function:
    - 2.1 Conjugate Eye Movements of Infants
    - 2.2 Development of the Vestibuloocular and Optokinetic reflexes
3. Spatial and Chromatic Vision:
    - 3.1 Front-end Limitations to Infant Spatial vision: Examination of two analyses
    - 3.2 Development of the Human Visual Field
    - 3.3 Development of Scotopic Retinal Sensitivity
    - 3.4 Infant Color vision
    - 3.5 Orientation and Motion selective Mechanisms in Infants
    - 3.6 Intrinsic Noise and Infant performance
4. Binocular Vision:

4.1 Development of interocular vision in Infants
4.2 Stereopsis in Infants and its developmental relation to visual acuity
4.3 Sensorimotor Adaptation and Development of the Horopter
4.4 Two stages in the development of Binocular Vision and Eye Alignment

5. Retinal and cortical Development
6. Abnormal Visual Development
7. What next in Infant Research
8. Clinical Applications:
   8.1 Assessment of Child Vision and Refractive Error
   8.2 Refractive Routines in the Examination of Children
   8.3 Cycloplegic Refraction
   8.4 Color Vision Assessment in Children
   8.5 Dispensing for the Child patient
   8.6 Pediatric Contact Lens Practice
   8.7 Dyslexia and Optometry Management
   8.8 Electrodiagnostic Needs of Multiple Handicapped Children
   8.9 Management Guidelines – Ametropia, Contant Strabismus
   8.10 Management Guidelines – Amblyopia
   8.11 Accommodation and Vergence anomalies
   8.12 Nystagmus
   8.13 Common genetic problems in Paediatric optometry
   8.14 Pediatric Ocular Diseases
   8.15 Ocular Trauma in Children
   8.16 Myopia control
   8.17 Clinical uses of prism

PRACTICAL:

1. Hands on training about all binocular vision tests and their interpretation
2. Training about all the tests done for children

TEXT/ REFERENCE BOOKS:

1. Clinical management of binocular vision Mitchell Scheiman and Bruce Wick
2. Applied concepts in vision therapy: Leonard Press
3. Pediatric optometry: Jerome K Rosner

LOW VISION CARE AND GERIATRIC OPTOMETRY

COURSE OBJECTIVES:

Upon completion of the course, the student should be able to understand the best suitable low vision and functional assistive device for a particular condition and rehabilitation. This course gives both in-depth theoretical knowledge and clinical exposure in low vision care. The outcomes of this course are: Thorough understanding of the causes of the low vision, its functional and psychosocial consequences. Help visually impaired individuals to utilize their residual visual skills optimally and rehabilitate.

1. Ability to diagnose and manage patients with vision impairment
2. Ability to perform specialized diagnostics for patients with low vision with multiple disabilities
3. Ability to train for eccentric viewing and steady eye techniques
4. Ability to rehabilitate patients with VI with vocational counselling and activities of daily living

COURSE PLAN

1. Visual Disorders – Medical Perspective
    - 1.1 The Epidemiology of Vision Impairment
    - 1.2 Vision Impairment in the pediatric population
    - 1.3 Ocular Diseases:
        - 1.3.1 Age – Related Cataract,
        - 1.3.2 Glaucoma
        - 1.3.3 ARMD
        - 1.3.4 Diabetic retinopathy
        - 1.3.5 Corneal Disorders
        - 1.3.6 Ocular Trauma
        - 1.3.7 Sensory Neuro-ophthalmology and Vision Impairment
        - 1.3.8 Refractive Disorders
2. Visual Disorders – The Functional Perspective
    - 2.1 Low Vision and Psychophysics
    - 2.2 Visual Functioning in Pediatric Populations with Low Vision
    - 2.3 Perceptual correlates of Optical Disorders
    - 2.4 Functional aspects of Neural Visual Disorders of the eye and Brain
    - 2.5 Visual Disorders and Performance of specific Tasks requiring vision
3. Visual Disorders – The Psychosocial Perspective
    - 3.1 Developmental perspectives – Youth
    - 3.2 Vision Impairment and Cognition
    - 3.3 Spatial orientation and Mobility of people with vision impairments
    - 3.4 Social skills Issues in vision impairment
    - 3.5 Communication and language: Issues and concerns
    - 3.6 Developmental perspectives on Aging and vision loss
    - 3.7 Vision and cognitive Functioning in old age
4. Interactions of Vision Impairment with other Disabilities and sensor Impairments.
    - 4.1 Children with Multiple Impairments
    - 4.2 Dual Vision and Hearing Impairment
    - 4.3 Diabetes Mellitus and Vision Impairment
    - 4.4 Vision Problems associated with Multiple Sclerosis
    - 4.5 Vision Impairment related to Acquired Brain Injury
    - 4.6 Vision and Dementia
    - 4.7 Low Vision and HIV infection

5. The Environment and Vision Impairment: Towards Universal Design
    - 5.1 Indian Disabilities act
    - 5.2 Children's Environments
    - 5.3 Environments of Older people
    - 5.4 Outdoor environments
    - 5.5 Lighting to enhance visual capabilities
    - 5.6 Signage and way finding
    - 5.7 Accessible Environments through Technology
6. Vision Rehabilitation:
    - 6.1 In Western Countries
    - 6.2 In Asia
    - 6.3 Personnel preparation in Vision Rehabilitation
7. Psychological and social factors in visual Adaptation and Rehabilitation

7.1 The Role of psychosocial Factors in adaptation to vision Impairment and Habilitation outcomes for Children and Youth

7.2 The Role of psychosocial Factors in adaptation to vision Impairment and Habilitation outcomes for Adults and Older adults

7.3 Social support and adjustment to vision Impairment across the life span
7.4 The person – Environment perspective of vision impairment
7.5 Associated Depression, Disability and rehabilitation
7.6 Methodological strategies and issues in social research on vision Impairment and Rehabilitation

PRACTICAL:

1. Training on all types of low vision test
2. Hands on training for special tests for geriatric people
3. Training about rehabilitation of aged person's with low vision.

TEXT/ REFERENCE BOOKS:

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

SPORTS VISION

Upon completion of the course, the student should be able to understand the exposure to advanced issues in managing binocular vision anomalies using vision therapy in sports players and in brain injury patients. Introduced to diagnose and treatment of sensory-motor disorders of binocular vision, their optometric evaluation and optometrist role.

Use the concept related to basics of binocular vision and interactions between accommodation and vergence through clinical testing to sports vision
Diagnose and treat/manage sports performance by enhancing or training visual skills
To apply the knowledge for control of eye positions and movements.

COURSE PLAN:

UNIT 1: 1.1 Introduction – Sports and vision
1.2 Visual characteristics and task analysis of sports
1.3 Visual Information processing and mechanisms in sports

UNIT 2: 2.1 Visual skills in sports vision
2.2 Visual performance evaluation
2.3 Enhancement of visual skills

UNIT 3: 3.1 Visual needs in different sports
a) Cricket, Hockey, Football, Basketball, Volleyball, Tennis, Badminton, Squash, Table tennis
b) Golf, Snooker, Chess, Archery, Rifle shooting, Boxing, Wrestling, Swimming, Scuba diving
3.2 Ocular injuries in sports
3.3 Management of injuries in sports

UNIT 4: 4.1 Personal protective equipments for different sports
4.2 Visual aid in sports
4.3 Therapies in sports vision

UNIT 5: 5.1 Role of optometrist in sport vision
5.2 Sport vision clinic setup
5.3 Future scope of sports vision

RESEARCH PROJECT

Data Collection and submit the progress of the research at the end of the semester.

CLINICAL OPTOMETRY - GENERAL

OBJECTIVES:

The objective of clinics in this semester is to be able to examine the eye and understand the all eye procedures with clinical management.

An approximate of guided 240 hours needs to be completed in this semester. The students will be by rotation go to community clinics, Campus clinics, and associated hospital and optical / optometric clinics.

The logbook has to be maintained and case sheets of each subject in the semester with complete management and follow up are mandatory for submission at the end of the semester

The log book needs to be signed by the supervisor during every visit.

No case record will be considered without the supervisor's signature

CLINICAL OPTOMETRY - SPECIALITY

OBJECTIVES:

The objective of clinics in this semester is to be able to gets hand-on experience related to diagnosis, interpretation of the reports/findings and management.

An approximate of guided 240 hours needs to be completed in this semester. The students will be by rotation go to community clinics, Campus clinics, and associated hospital and opticals / optometric clinics

The focus will be on the specialized subjects studies in this semester.

The logbook has to be maintained and case sheets of each subject in the semester with complete management and follow up are mandatory for submission at the end of the semester

The log book needs to be signed by the supervisor during every visit. No case record will be considered without the supervisor's signature

THIRD SEMESTER

ADVANCED CONTACT LENSES – II

COURSE OBJECTIVES:

Upon completion of the course, the student should be able to understand the corneal oxygen requirements and recommend the best suitable contact lens for a particular condition. Management of ocular complications with contact lenses. Understand contact lens fitting for compromised corneas and keratoconus. The student should also be able to understand the fitting philosophy of orthokeratology and myopia control.

1. Ability to fit specialized contact lenses
    - 1.1 Keratoconus
    - 1.2 Rose'Klenses
    - 1.3 Mini scleral lenses
    - 1.4 Hybrid lenses
    - 1.5 Orthokeratology
    - 1.6 Scleral lenses: Dry eyes, SJS, Post PK, Post C3R, Post LASIK ectasia
2. Ability to fit custom made ocular prosthesis
3. Ability to fit pediatric contact lenses

COURSE PLAN:

1. Extended and Continuous wear Lenses
2. Scleral Contact lenses
3. Bifocal and Multifocal contact lenses
4. Orthokeratology
5. Keratoconus
6. Post keratoplasty contact lens fitting
7. Post refractive surgery contact lens fitting
8. Pediatric contact lens fitting
9. Cosmetic and prosthetic contact lens fitting
10. Contact lens for abnormal ocular conditions
11. Contact lens and Myopia control
12. Legal issues and contact lenses
13. Contact lens manufacturing
14. Modifications procedures

PRACTICAL:

1. Training on various types of contact lens tests and their fitting

TEXT/ REFERENCE BOOKS:

1. IACLE MODULES
2. CONTACT LENSES – STONE AND PHILIPS

LOW VISION CARE AND REHABILITATION

COURSE OBJECTIVES: Upon completion of the course, the student should be able to understand the best suitable low vision and functional assistive device for a particular condition and rehabilitation. This course gives both in-depth theoretical knowledge and clinical exposure in low vision care. The outcomes of this course are: Thorough understanding of the causes of the low vision, its functional and psychosocial consequences. Help visually impaired individuals to utilize their residual visual skills optimally and rehabilitate.

COURSE COMPETENCIES:

1. Ability to diagnose and manage patients with vision impairment
2. Ability to perform specialized diagnostics for patients with low vision with multiple disabilities
3. Ability to train for eccentric viewing and steady eye techniques
4. Ability to rehabilitate patients with VI with vocational counselling and activities of daily Living

COURSE PLAN:

1. Habilitation of Children and Youth with vision Impairment
2. Rehabilitation of working –age Adults with Vision Impairment
3. Rehabilitation of older Adults with Vision Impairment
4. Functional consequences of vision Impairment
5. Vision evaluation of Infants
6. Educational assessment of visual function in Infants and Children
7. Functional Evaluation of the adult
8. Functional orientation and Mobility
9. Functional Assessment of Low Vision for Activities of Daily living
10. Psychosocial assessment of adults with vision impairment
11. Assistive Devices and Technology for Low Vision
12. Assistive Devices and Technology for Blind
13. Vision and Reading - Normal Vs Low Vision
14. Clinical Implications of color vision Deficiencies

PRACTICAL:

1. Training about various rehabilitation for low vision patients

TEXT/ REFERENCE BOOKS: The lighthouse handbook on vision impairment and Vision Rehabilitation: Barbara Silverstone, Mary Ann Lang, Bruce Rosenthal, Faye.

PATIENT CARE

Patient vital signs - temperature, pulse, respiration and blood pressure - normal values and methods of taking and recording them. Development of communication skills with patient-general comfort and reassurance to the patient-patient education and explaining about the study drugs used in the preparation of the patient. Handling of an unconscious patient shifting of patients - hazards of lifting and maneuvering patients - rules for correct lifting- transfer from chair/wheel chair or trolley to couch and vice-versa - safety of patient and worker while lifting & shifting of patients- handling of geriatric, pediatric and trauma patients -handling female patients-pregnant women. Communicable diseases - hygiene in the department-cross infection and prevention-handling of infectious patients in the department -application of asepsis.

RESEARCH PROJECT:

Data Collection, Literature search, Presentation of the progress of the project to the guide.

CLINICAL OPTOMETRY – GENERAL

OBJECTIVES: The objective of clinics in this semester is to be able to examine the eye and understand the all eye procedures with clinical management.

An approximate of guided 240 hours needs to be completed in this semester. The students will be by rotation go to community clinics, Campus clinics, and associated hospital and optical / optometric clinics.

The logbook has to be maintained and case sheets of each subject in the semester with complete management and follow up are mandatory for submission at the end of the semester The log book needs to be signed by the supervisor during every visit. No case record will be considered without the supervisor's signature

CLINICAL OPTOMETRY - SPECIALITY

OBJECTIVES: The objective of clinics in this semester is to be able to gets hand-on experience related to diagnosis, interpretation of the reports/findings and management.

An approximate of guided 240 hours needs to be completed in this semester. The students will be by rotation go to community clinics, Campus clinics, and associated hospital and optical / optometric clinics.

The focus will be on the specialized subjects studies in this semester.

The logbook has to be maintained and case sheets of each subject in the semester with complete management and follow up are mandatory for submission at the end of the semester The log book needs to be signed by the supervisor during every visit. No case record will be considered without the supervisor's signature

FOURTH SEMESTER

OCCUPATIONAL OPTOMETRY

1. Introduction to occupational health, hygiene and safety International Bodies like ILO. WHO, National bodies like Labor institutes, National institute of occupational health, National Safety Council etc.
2. Acts and Rules Factories Act, and Rules Workmen's compensation ESI Act, etc.
3. Occupational diseases/occupational related diseases caused by-physical agents, chemical agents and biological agents
4. Occupational hygiene,environmental monitoring, Recognition, evaluation, control of hazards. Illumination – definition, measurements, standards.
5. Occupational safety. Causes of accidents. Vision, Lighting, colorand their role. Accident analysis. Accident prevention
6. Ocular and visual problems of occupation Electromagnetic radiation Ionising Non-ionisinginfrared, Ultra violet , Microwave laser Injuries-mechanical, chemical Toxicology – metals, chemicals
7. Prevention of occupational diseases Medical examinational / medical monitoring Pre-employment / pre - placement Periodic
8. Personal protective equipment General Goggles, face shields etc. Selection and use Testing for standards
9. Standards Visual standards for jobs.
10. Problems of special occupational groups Drivers, pilots and others
11. Field work – submission of reports Visits to: Regional Labour Institute selected industries
12. Visual display units (terminals) VDU/VDT Contact lens and work Pesticides - general and visual and ocular defect

VISION THERAPY

COURSE OBJECTIVES: The course is designed to help expand the student's knowledge base in all aspects of behavioral vision care. Advanced competency is expected in the following principles and procedures for each clinical condition.

COURSE COMPETENCIES:
Principles and Procedures – The student should be able to define and explain:
1. The unique qualities, scientific, and clinical principles of each clinical condition.
2. The epidemiological and demographic characteristics of each clinical condition.
3. The characteristic history, signs and symptoms for each clinical condition.
4. How to assess each clinical condition, including specific test protocols and their interpretation.
5. The differential diagnosis for each clinical condition.
6. The specific treatment and management of each clinical condition including:
6.1 Prognostic indicators
6.2 Treatment options
6.3 Duration and frequency of treatment
6.4 Treatment philosophy and goals
6.5 Specific lens treatment and therapy procedures including rationale for treatment
6.6 Ergonomics and visual hygiene
6.7 Outcomes to determine successful completion of treatment
6.8 Frequency of follow-up care and patient instructions
6.9 Referral criteria (medical, neurological, educational, etc.)

COURSE PLAN:
1. Clinical Conditions
1.1 Strabismus and Amblyopia
1.1.1 Amblyopia
Anisometropic / Isometropic Refractive Amblyopia
Strabismic Amblyopia
Hysterical Amblyopia
Form Deprivation Amblyopia
Differential diagnoses in childhood visual acuity loss
1.1.2 Strabismus
Esotropia- Infantile, Accommodative, Acquired, Microtropia, Sensory, Convergence Excess, Divergence Insufficiency, Non-accommodative, Sensory Adaptations
Exotropia
Divergence Excess, Convergence Insufficiency, Basic Exotropia, Congenital, Sensory, Vertical Deviations
Noncomitant Deviations
(AV Syndrome; Duane's Retraction Syndrome; Brown's Syndrome; III, IV, VI nerve palsy,etc.)
Differential diagnoses in strabismus
Special clinical considerations
Anomalous Correspondence
Eccentric Fixation
Suppression
Motor ranges
Stereopsis

Horror fusionalis/intractable diplopia
1.2 Perception and Information Processing
1.2.1 Neurological / Psychological
Ambient / focal systems.
Visual perceptual midline
Parvo cellular / Magno cellular function
Perceptual Style (central, peripheral)
Impact of colored filters
Attention
1.2.2 Intersensory and Sensorimotor Integration
Visual-auditory
Visual-vestibular
Visual-oral
Visual-motor
Visual-tactual
1.2.3 Performance indicators
Laterality and directionality
Visual requirements for academic success
Bilaterality
Gross and fine motor ability
Form perception/visual analysis
Spatial awareness
Visualization
Visual memory
Visual sequential memory
Form constancy
Visual speed and visual span
Visual sequencing
1.3 Refractive conditions and visual skills
1.3.1 Refractive Conditions
Developmental influence on refraction &emmetropization
Aniseikonia
Myopia
Astigmatism
Hyperopia
1.3.2 Ocular Motor Function
Eye movements and reading
Pursuit dysfunctions
Nystagmus
Saccadic Dysfunctions
1.3.3 Accommodation
Role in myopia development
Role in computer-related asthenopia
1.3.4 Fusion in Non-Strabismic Conditions
Fixation disparity
Motor fusion
Sensory fusion
1.4 Special clinical conditions
1.4.1 Acquired brain injury (traumatic brain injury {TBI} and stroke)
1.4.2 Developmental disabilities (Down Syndrome, Developmental delay, etc.)
1.4.3 Visually induced balance disorders
1.4.4 Motor disabilities (Cerebral Palsy, ataxia, etc.)
1.4.5 Behavioral disorders
1.4.6 Autism spectrum disorders

1.4.7 ADD / ADHD
1.4.8 Dyslexia and specific reading disabilities
1.4.9 Learning Disabilities
1.4.10 Computer Vision Syndrome

2. Vision Therapy Concepts to Consider
2.1 Peripheral awareness:
2.1.1 Focal / ambient roles
2.1.2 Significant findings which are good or poor prognostic indicators of vision therapy and lens application
2.1.3 Development, rehabilitation, prevention, enhancement
2.1.4 Behavioral lens application
2.1.5 Yoked prism rationale for treatment and application
2.1.6The relationship between the visual and vestibular systems
2.1.7SILO/SOLI
2.1.8Visual stress and its impact on the visual system
2.1.9Role of posture in vision development, comfort and performance
2.1.10Disruptive therapy: Discuss this type of therapy and how it can be used as a clinical therapeutic tool.
2.1.11Relationship of speech-auditory to vision
2.1.12How television, reading, video gaming might restrict movement, computer work, nutrition, etc., impact vision?
2.1.13Perceptual Style, e.g., spatial/temporal, central/peripheral

PRACTICAL:

1. Training on various vision therapies for binocular vision anomalies patients

TEXT/ REFERENCE BOOKS:

1. Clinical management of binocular vision Mitchell Scheiman and Bruce Wick
2. Applied concepts in vision therapy: Leonard Press

RECENT ADVANCES IN OPTOMETRY

COURSE DESCRIPTION:

The objective of this course is to provide optometry students with current knowledge and research on eye care and optometric management.

OBJECTIVES:

Upon completion of this course, students will be able to:
1. Describe the latest advances in optometric technology and treatment modalities.
2. Provide evidence-based care that is consistent with current best practices.
3. Communicate effectively with patients and other healthcare professionals about the latest advances in optometry.

UNIT I

Current strategies in
Myopia Control methods
Presbyopia correction

Amblyopia management

UNIT II

1. Telemedicine
2. Evolving Technologies: Tele-optometry techniques in
   Patient care
   Documentation
   Imaging

UNIT III

1. Artificial intelligence and data science in Optometry
2. Virtual reality and augmented reality in vision therapy & low vision
3. Programming languages in Optometry

UNIT IV

1. Overview of genetic testing in eye care
2. Genetic factors in refractive errors and diseases
3. Counselling patients based on genetic information
4. Gene therapy for ocular diseases

UNIT V

Case Studies and Evidence based practice on:
- Optical biomarkers for ocular diseases
- Ocular prosthesis
- Dry eyes and computer vision syndrome
- Ocular drug delivery

TEXT BOOK:

1. Margie Lovett Scott, Faith Prather. Global health systems comparing strategies for delivering health services. Joney & Bartlett learning, 2014
2. Evidence based: Recent publications

RESEARCH PROJECT:

Literature search, Data analysis, Interim Analysis, Thesis write-up, Presentation of the research work in front of the experts, and manuscript write –up for journal (optional)

CLINICAL OPTOMETRY (GENERAL AND SPECIALITY)
OCULAR DISEASES AND DIAGNOSTICS - I
COURSE COMPETENCIES:

1. Ability to perform clinical decision making for ocular abnormalities
2. Ability to perform and interpret corneal diagnostics including
2.1 Topography/Pentacam/Orbscan
2.2 Specular microscopy
2.3 Pachymetry
2.4 Abberometry
2.5 AS OCT UBM
3. Ability to perform pre and post Lasik evaluation
4. Ability to interpret glaucoma diagnostic reports
4.1 OCT
4.2 HRT
4.3 GDx
4.4 Gonioscopy

4.5 ONH evaluation
5. Ability to perform anterior segment photography and ophthalmic imaging
6. Ability to manage and co-manage therapeutics for anterior segment

OCULAR DISEASES AND DIAGNOSTICS - II
COURSE COMPETENCIES:
1. Ability to perform electro diagnostic procedures and interpret electro diagnostic reports
   1.1 ERG
   1.2 EOG
   1.3 VEP
2. Ability to perform stereoscopic fundus photography
3. Ability to use Ocular photography as as tool for evidence based clinical decision making and progression analysis
4. Ability to perform posterior segment photography
5. Ability to manage and co-manage diseases and disorders of posterior segment

LOW VISION CARE
COURSE COMPETENCIES:
1. Ability to diagnose and manage patients with vision impairment
2. Ability to perform specialized diagnostics
   2.1 Rudimentary vision
   2.2 Berkeley visual field test
   2.3 Hand disc perimetry
3. Ability to train for eccentric viewing and steady eye techniques
4. Ability to rehabilitate patients with VI with vocational counselling and activities of daily living

PEDIATRIC OPTOMETRY AND BINOCULAR VISION:
COURSE COMPETENCIES:
1. Ability to diagnose and manage and co-manage binocular vision anomalies
2. Ability to co-manage visual perceptual anomalies
3. Ability to manage diplopia, suppression and ARC
4. Ability to manage amblyopia

ADVANCED CONTACT LENSES – I
COURSE COMPETENCIES:
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
   3.1 Keratoconus
   3.2 Rose'Klenses
   3.3 Mini scleral lenses

ADVANCED CONTACT LENSES – II
COURSE COMPETENCIES:
1. Ability to fit specialized contact lenses
   1.1 Keratoconus
   1.2 Rose'Klenses
   1.3 Mini scleral lenses
   1.4 Hybrid lenses
   1.5 Orthokeratology
   1.6 Scleral lenses: Dry eyes, SJS, Post PK, Post C3R, Post LASIK ectasia
2. Ability to fit custom made ocular prosthesis
3. Ability to fit pediatric contact lenses

VISION THERAPY

COURSE COMPETENCIES:

1. Principles and Procedures – The student should be able to define and explain:
   1.1 The unique qualities, scientific, and clinical principles of each clinical condition.
   1.2 The epidemiological and demographic characteristics of each clinical condition
   1.3 The characteristic history, signs and symptoms for each clinical condition.
   1.4 How to assess each clinical condition, including specific test protocols and their interpretation.
   1.5 The differential diagnosis for each clinical condition.
   1.6 The specific treatment and management of each clinical condition including:
      1.6.1 Prognostic indicators
      1.6.2 Treatment options
      1.6.3 Duration and frequency of treatment
      1.6.4 Treatment philosophy and goals
      1.6.5 Specific lens treatment and therapy procedures including rationale for treatment
      1.6.6 Ergonomics and visual hygiene
      1.6.7 Outcomes to determine successful completion of treatment
      1.6.8 Frequency of follow-up care and patient instructions
      1.6.9 Referral criteria (medical, neurological, educational, etc.)

OCCUPATIONAL OPTOMETRY

1. Introduction to occupational health, hygiene and safety International Bodies like ILO. WHO, National bodies like Labor institutes, National institute of occupational health, National Safety Council etc.
2. Acts and Rules Factories Act, and Rules Workmen's compensation ESI Act, etc.
3. Occupational diseases/occupational related diseases caused by-physical agents, chemical agents and biological agents
4. Occupational hygiene,environmental monitoring, Recognition, evaluation, control of hazards. Illumination – definition, measurements, standards.
5. Occupational safety. Causes of accidents. Vision, Lighting, colorand their role. Accident analysis. Accident prevention
6. Ocular and visual problems of occupation Electromagnetic radiation Ionising Non-ionisinginfrared, Ultra violet , Microwave laser Injuries-mechanical, chemical Toxicology – metals, chemicals
7. Prevention of occupational diseases Medical examinational / medical monitoring Preemployment / pre placement Periodic
8. Personal protective equipment General Goggles, face shields etc. Selection and use Testing for standards
9. Standards Visual standards for jobs.
10. Problems of special occupational groups Drivers, pilots and others
11. Field work – submission of reports Visits to: Regional Labour Institute selected industries
12. Visual display units (terminals) VDU/VDT Contact lens and work Pesticides - general and visual and ocular defects