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Ordinance & Syllabus For “Optometry”

Master of Optometry (M.Optom)



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ORDINANCE, REGULATIONS & SYLLABUS FOR M.OPTOM COURSE OF ATAL BIHARI VAJPAYEE MEDICAL UNIVERSITY,
LUCKNOW (U.P) INDIA ADOPTED AS PER NCAHP COMPETENCY BASED CURRICULUM (NCAHP ACT- 2021)

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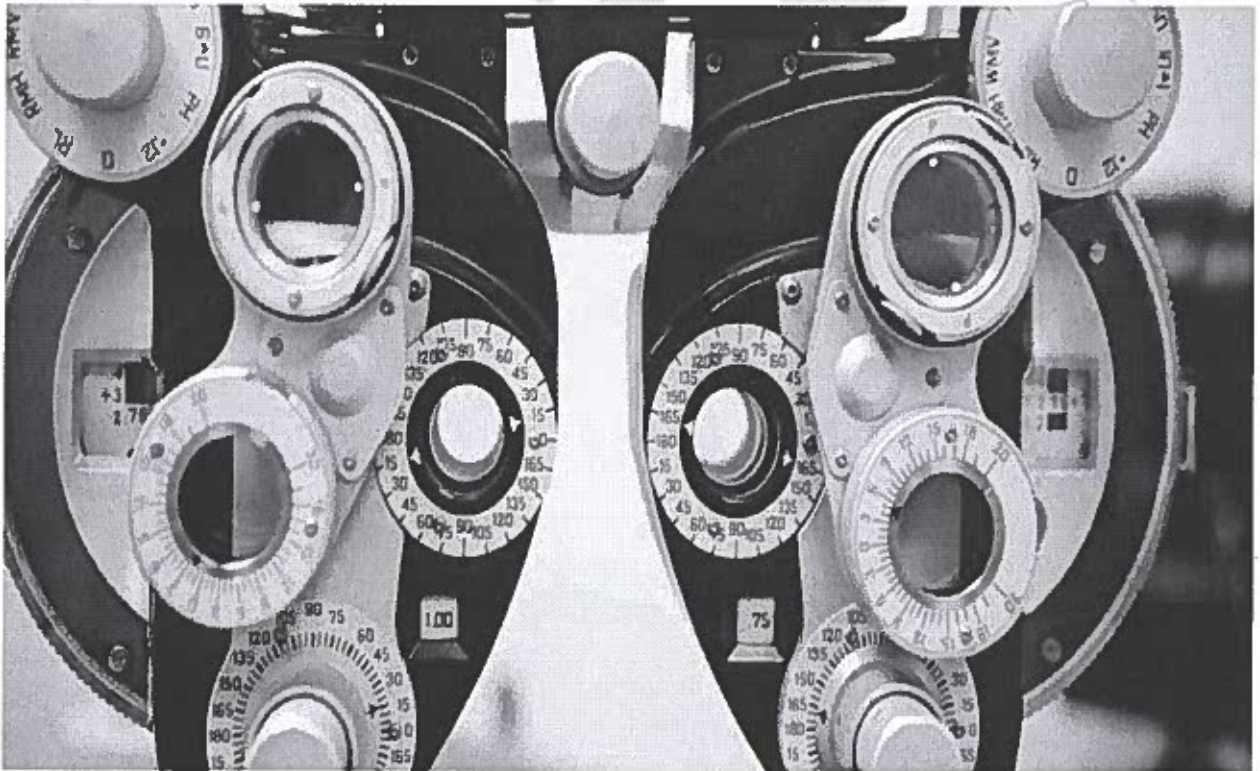
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COMMISSION FOR ALLIED AND HEALTHCARE PROGRAMS

COMPETENCY BASED CURRICULUM
for
“OPTOMETRY”



As per the NCAHP Act -2021

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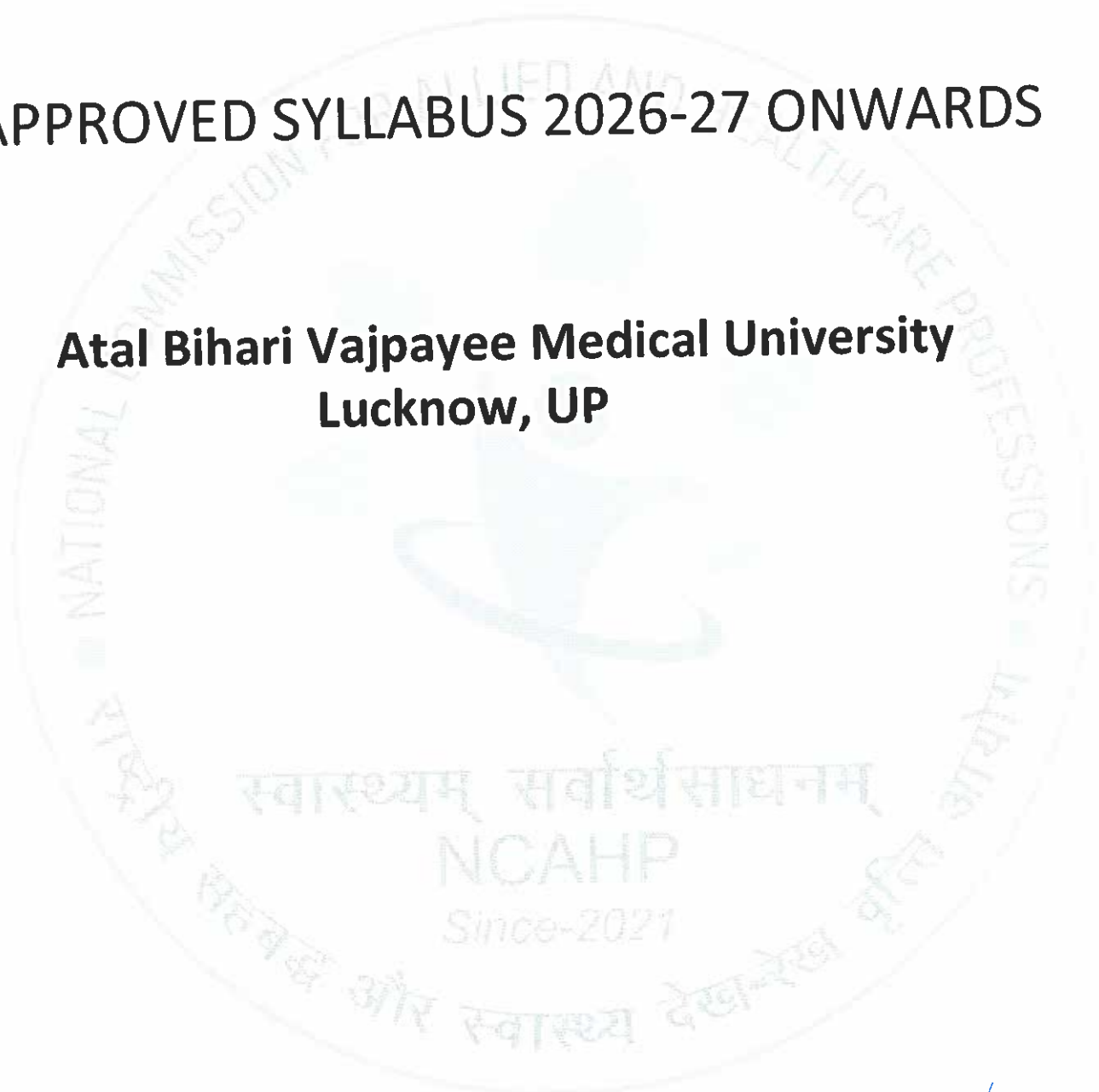
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APPROVED SYLLABUS 2026-27 ONWARDS

**Atal Bihari Vajpayee Medical University
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List of Abbreviations

AHP	Allied and Healthcare Professional
AED	Automated External Defibrillator
ANSI	American National Standard Institute
AYUSH	Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy
BOptom	Bachelor of Optometry
BLS	Basic Life Support
BMW	Bio Medical Waste
BSc	Bachelor of Science
BSV	Binocular Single Vision
BVM	Bag-Valve-Masks
C	Credit
CR	Challenge rating
CE	Continuing Education
CATS	Credit Accumulation and Transfer System
CbD	Case-based Discussion
CBSE	Central Board of Secondary Education
CEX	Mini Case Evaluation Exercise
CHC	Community Health Centre
CL	Contact Lenses
CLC	Circle of Least Confusion
CMOC	Common Minimum Optometry Curriculum
COPD	Chronic Obstructive Pulmonary Disease
CPR	Cardiopulmonary Resuscitation
CPU	Central Processing Unit
DH	District Hospital
DOPs	Direct Observation of Procedures

EBV	Epstein-Barr Virus
ECG	Electro Cardio Gram
ECHO	Echocardiography
ECTS	European Credit Transfer System
EEG	Electroencephalogram
EMG	Electromyography
EOG	Electrooculogram
ERG	Electroretinogram
ESI	Employees' State Insurance
FAQ	Frequently Asked Questions
FDA	Food and Drug Administration
GSE	Gullstrand's Schematic Eye
HBV	Hepatitis B Virus
HIV	Human Immunodeficiency Virus
HPV	Human Papilloma Virus
HSSC	Healthcare Sector Skill Council
HVID	Horizontal Visible Iris Diameter
IA	Internal Assessment
ICAHP	Interim Commission for Allied & Healthcare Professions
ICT	Information & Communication Technology
ICU	Intensive Care Unit
IELOCS	Indian Entry Level Optometry Competency Skill Standard
ILO	International Labour Organization
IPD	Inter-pupillary distance
KPI	Key Performance Indicator
JCC	Jackson Cross-Cylinder
JCI	Joint Commission International
L	Lecture
LAN	Local Area Network

LPS	Levator Palpebrae Superioris
M Optom	Master of Optometry
MLC	Medico Legal Case
MoHFW	Ministry of Health and Family Welfare
MS	Microsoft
MSc	Master of Science
MSR	Minimum Standard Requirement
MTF	Modulation Transfer Function
NAAC	National Assessment and Accreditation Council
NABH	National Accreditation Board for Hospitals & Healthcare Providers
NCRC	National Curricula Review Committee
NCAHP	National Commission for Allied & Healthcare Professions
NIAHS	National Initiative for Allied and Healthcare Sciences
NITBUT	Non-Invasive Tear Break-Up Time
NPCB	National Programme for Control of Blindness
OSCE	Objective Structured Clinical Examination
OSLER	Objective Structured Long Examination Record
OSPE	Objective Structured Practical Examination
P	Practical
PBCT	Prism Bar Cover Test
PFT	Pulmonary Function Test
PHC	Primary Health Centre
PhD	Doctor of Philosophy
PPE	Personal protective equipment
RAPD	Relative Afferent Pupillary Defect
RGP	Rigid Gas Permeable
ROPLAS	Regurgitation On Pressure over Lacrimal Sac
SCA	Sudden Cardiac Arrest

SCL	Soft Contact Lenses
SDH	Sub District Hospital
SMP	Simultaneous macular perception
SN	Staff Nurse
STD	Sexually Transmitted Diseases
T	Theory
TBUT	Tear breakup time
TSU	Technical Support Unit
UE	University Examination
UHC	Universal Health Coverage
UV	Ultra Violet
VEP	Visual Evoked Potential
WAN	Wide Area Network
WCA	Workmen's Compensation Act
WHO	World Health Organization
WWW	World Wide Web





Chapter 1

Introduction to the Handbook

Chapter 1: Introduction to the Handbook

The report „From Paramedics to Allied Health Professionals: Landscaping the Journey and Way Forward“ that was published in 2012, marked the variance in education and training practices for the allied and healthcare courses offered by institutions across the country. This prompted the Ministry of Health and Family Welfare to envisage the creation of national guidelines for education and career pathways of allied and healthcare professionals, with a structured curriculum based on skills and competencies. Thus, this handbook has been designed to familiarize universities, colleges, healthcare providers as well as educators offering allied and healthcare courses with these national standards.

Individually, created for different professional groups of allied and healthcare, this handbook aims to reduce the variation in education by having a standardized curriculum, career pathways, nomenclature and other details for each profession. The change from a purely didactic approach will create better skilled professionals and improve the quality of overall patient care. Based on the recommendations of the NCAHP Act this handbook can also guide the thousands of young adults who choose healthcare as a profession on the appropriate course of action to enable them to be skilled allied and healthcare professionals of the future

Who is an Allied and Healthcare Professional?

The Ministry of Health and Family Welfare, accepted in its entirety the definition of an allied and healthcare professional based on the afore-mentioned report, though the same has evolved after multiple consultations and the recommended definition is now as follows-

„Allied and healthcare professionals (AHPs) includes individuals involved with the delivery of health or healthcare related services, with qualification and competence in therapeutic, diagnostic, curative, preventive and/or rehabilitative interventions. They work in multidisciplinary health teams in varied healthcare settings including doctors (physicians and specialist), nurses and public health officials to promote, protect, treat and/or manage a person(,,s) physical, mental, social, emotional, environmental health and holistic well-being.“

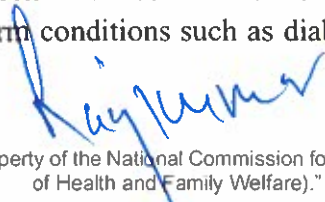
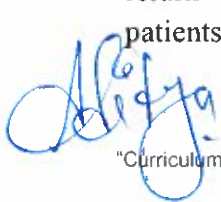
The National Commission for Allied and Healthcare Professions Act, 2021 (The NCAHP Act 2021) was passed by Rajya Sabha on March 16, 2021, and by Lok Sabha on March 24, 2021. The Government notified it in the Gazette of India on March 28, 2021, after it received the assent of the President. The Act provides for “regulation and maintenance of standards of education and services by allied and healthcare professionals, assessment of institutions, maintenance of a Central Register and State Register” of professionals.

NCAHP Act is to provide for regulation and maintenance of standards of education and services by allied and healthcare professionals, assessment of institutions, maintenance of a Central Register and State Register and creation of a system to improve access, research and development and adoption of latest scientific advancement and for matters connected therewith or incidental thereto.

Scope and need for allied and healthcare professionals in the Indian healthcare system

The quality of medical care has improved tremendously in the last few decades due to the advances in technology, thus creating fresh challenges in the field of healthcare. It is now widely recognized that health service delivery is a team effort involving both clinicians and non-clinicians, and is not the sole duty of physicians and nurses.¹ Professionals that can competently handle sophisticated machinery, advanced protocols and interpret reports and analyze results are now in high demand globally. In fact, diagnosis is now so dependent on technology, that allied and healthcare professionals (AHPs) are vital to diagnosis and successful management

As the Indian government aims for Universal Health Coverage, the lack of skilled human resource may prove to be the biggest impediment in its path to achieve targeted goals. The benefits of having AHPs in the healthcare system are still unexplored in India. Although an enormous amount of evidence suggests that the benefits of AHPs range from improving access to healthcare services to significant reduction in the cost of care, the Indian healthcare system still revolves around the doctor-centric approach leading to long waiting lists and delayed treatments.. The privatization of healthcare has also led to an ever-increasing out-of-pocket expenditure by the population. However, many examples assert the need of skilled allied and healthcare professionals in the system, such as in the case of stroke survivors, it is the support of AHPs that significantly enhance their rehabilitation and long term treatment ensures return to normal life. AHPs also play a significant role to reduce chronic workforce shortages and improve patient access in a range of locations and special care for patients who struggle mentally and emotionally in the current challenging environment and require mental health support; and help them return to well-being.² Children with communication difficulties, the elderly, cancer patients, patients with long term conditions such as diabetes people with vision problems



and amputees; the list of people and potential patients who benefit from AHPs is indefinite.

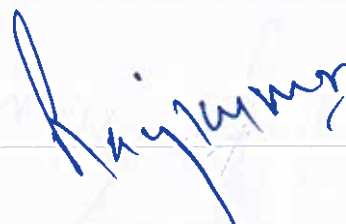
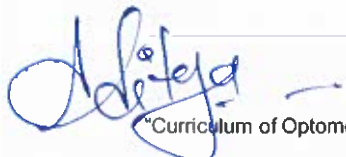
Thus, Allied health professionals are capable of providing a broad range of diagnostic, technical, therapeutic and direct health services to improve the health and wellbeing of the consumers they support. The breadth and scope of the allied and healthcare practice varies from one end to another, including areas of work listed below:

- Across the age span of human development from neonate to old age;
- With patients having complex and challenging problems resulting from systemic illnesses such as in the case of diabetes, cardiac abnormalities/conditions and elderly care to name a few;
- Towards health promotion and disease prevention, as well as assessment, management and evaluation of interventions and protocols for treatment;
- In a broad range of settings from a patient's home to community, primary care centers, to tertiary care settings; and
- With an understanding of the healthcare issues associated with diverse socio-economies and cultural norms within the society
- To provide management and rehabilitative therapies to patients/individuals where non-surgical treatments are indicated or advocated.

Learning goals and objectives for allied and healthcare professionals

The handbook has been designed with a focus on performance-based outcomes pertaining to different levels. The learning goals and objectives of the undergraduate and graduate education program will be based on the performance expectations. They will be articulated as learning goals (why we teach this) and learning objectives (what the students will learn). Using the framework, students will learn to integrate their knowledge, skills and abilities in a hands-on manner in a professional healthcare setting. These learning goals are divided into nine key areas, though the degree of required involvement may differ across various levels of qualification and professional cadres:

1. Clinical care
2. Communication
3. Membership of a multidisciplinary health team
4. Ethics and accountability at all levels (clinical, professional, personal and social)
5. Commitment to professional excellence
6. Leadership and mentorship
7. Social accountability and responsibility
8. Scientific attitude and scholarship (only at higher level- PhD)
9. Lifelong learning



1. Clinical Care

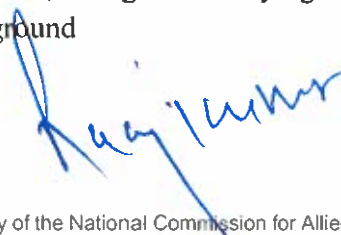
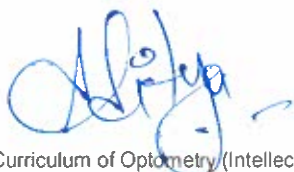
Using a patient/family-centered approach and best evidence, each student will organize and implement the prescribed preventive, investigative and management plans; and will offer appropriate follow-up services. Program objectives should enable the students to:

- Apply the principles of basic science and evidence-based practice
- Use relevant investigations as needed
- Identify the indications for basic procedures and perform them in an appropriate manner.
- Provide care to patients – efficiently and in a cost-effective way – in a range of settings, and maintain foremost the interests of individual patients.
- Identify the influence of biological, psychosocial, economic, and spiritual factors on patients' well-being and act in an appropriate manner.
- Incorporate strategies for health promotion and disease prevention with their patients.

2. Communication

The student will learn how to communicate with patients/clients, care-givers, other health professionals and other members of the community effectively and appropriately. Communication is a fundamental requirement in the provision of health care services. Program objectives should enable the students to:

- Provide sufficient information to ensure that the patient/client can participate as actively as possible and respond appropriately to the information
- Clearly discuss the diagnosis and options with the patient, and negotiate appropriate treatment plans in a sensitive manner that is in the patient's and society's best interests
- Explain the proposed healthcare service – its nature, purpose, possible positive and adverse consequences, its limitations, and reasonable alternatives wherever they exist
- Use effective communication skills to gather data and share information including attentive listening, open-ended inquiry, empathy and clarification to ensure understanding
- Appropriately communicate with, and provide relevant information to, other stakeholders including members of the healthcare team
- Use communication effectively and flexibly in a manner that is appropriate for the reader or listener
- Explore and consider the influence that the patient's ideas, beliefs and expectations have during interactions with them, along with varying factors such as age, ethnicity, culture and socioeconomic background



- Develop efficient techniques for all forms of written and verbal communication including accurate and timely record keeping
- Assess their own communication skills, develop self-awareness and be able to improve their relationships with others
- Possess skills to counsel for lifestyle changes and advocate health promotion.

3. Membership of a multidisciplinary health team

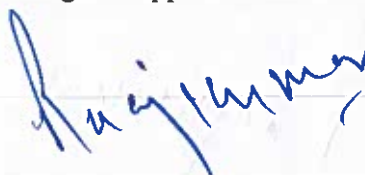
The student will put a high value on effective communication within the team, including transparency about aims, decisions, uncertainty and mistakes. Team-based health care is the provision of health services to individuals, families, and/or their communities by at least two health providers who work collaboratively to accomplish shared goals within and across settings to achieve coordinated, high quality care. Program objectives will aim at making the students being able to:

- Recognize, clearly articulate, understand and support shared goals in the team that reflect patient and family priorities
- Possess distinct roles within the team; to have clear expectations for each member's functions, responsibilities, and accountabilities, which in turn optimizes the team's efficiency and makes it possible for them to use division of labor advantageously, and accomplish more than the sum of its parts
- Develop mutual trust within the team to create strong norms of reciprocity and greater opportunities for shared achievement
- Communicate effectively so that the team prioritizes and continuously refines its communication channels creating an environment of general and specific understanding
- Recognize measurable processes and outcomes, so that the individual and team can agree on and implement reliable and timely feedback on successes and failures in both the team's functioning and the achievement of their goals. These can then be used to track and improve performance immediately and over time.

4. Ethics and accountability

Students will understand core concepts of clinical ethics and law so that they may apply these to their practice as physicians. Program objectives should enable the students to:

- Describe and apply the basic concepts of clinical ethics to actual cases and situations
- Recognize the need to make health care resources available to patients fairly, equitably and without bias, discrimination or undue influence
- Demonstrate an understanding and application of basic legal concepts to the practice


- Employ professional accountability for the initiation, maintenance and termination of patient-provider relationships
- Demonstrate respect for each patient's individual rights of autonomy, privacy, and confidentiality

5. Commitment to professional excellence

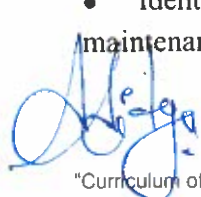
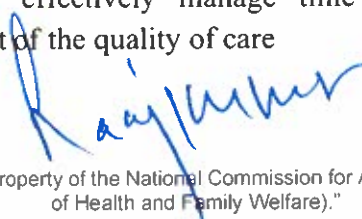
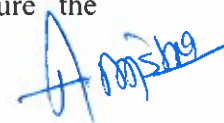
The student will execute professionalism to reflect in his/her thought and action a range of attributes and characteristics that include technical competence, appearance, image, confidence level, empathy, compassion, understanding, patience, manners, verbal and non-verbal communication, an anti-discriminatory and non-judgmental attitude, and appropriate physical contact to ensure safe, effective and expected delivery of healthcare. Program objectives will aim at making the students being able to:

- Demonstrate distinctive, meritorious and high quality practice that leads to excellence and that depicts commitment to competence, standards, ethical principles and values, within the legal boundaries of practice
- Demonstrate the quality of being answerable for all actions and omissions to all, including service users, peers, employers, standard-setting/regulatory bodies or oneself
- Demonstrate humanity in the course of everyday practice by virtue of having respect (and dignity), compassion, empathy, honour and integrity
- Ensure that self-interest does not influence actions or omissions, and demonstrate regards for service-users and colleagues

6. Leadership and mentorship

The student must take on a leadership role where needed in order to ensure clinical productivity and patient satisfaction. They must be able to respond in an autonomous and confident manner to planned and uncertain situations, and should be able to manage themselves and others effectively. They must create and maximize opportunities for the improvement of the health seeking experience and delivery of healthcare services. Program objectives should enable the students to:

- Act as agents of change and be leaders in quality improvement and service development, so that they contribute and enhance people's wellbeing and their healthcare experience
- Systematically evaluate care; ensure the use of these findings to help improve people's experience and care outcomes, and to shape clinical treatment protocols and services
- Identify priorities and effectively manage time and resources to ensure the maintenance or enhancement of the quality of care

- Recognize and be self-aware of the effect their own values, principles and assumptions may have on their practice. They must take charge of their own personal and professional development and should learn from experience (through supervision, feedback, reflection and evaluation)
- Facilitate themselves and others in the development of their competence, by using a range of professional and personal development skills
- Work independently and in teams. They must be able to take a leadership role to coordinate, delegate and supervise care safely, manage risk and remain accountable for the care given; actively involve and respect others' contributions to integrated person-centered care; yet work in an effective manner across professional and agency boundaries. They must know when and how to communicate with patients and refer them to other professionals and agencies, to respect the choices of service users and others, to promote shared decision-making, to deliver positive outcomes, and to coordinate smooth and effective transition within and between services and agencies.

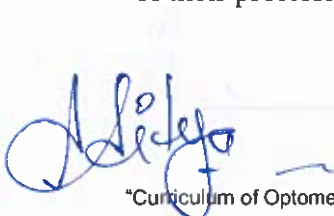
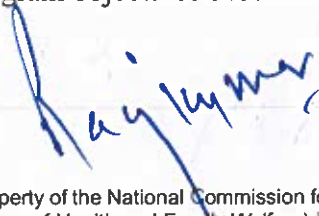

7. Social Accountability and Responsibility

The students will recognize that allied and healthcare professionals need to be advocates within the health care system, to judiciously manage resources and to acknowledge their social accountability. They have a mandate to serve the community, region and the nation and will hence direct all research and service activities towards addressing their priority health concerns. Program objectives should enable the students to:

- Demonstrate knowledge of the determinants of health at local, regional and national levels and respond to the population needs
- Establish and promote innovative practice patterns by providing evidence-based care and testing new models of practice that will translate the results of research into practice, and thus meet individual and community needs in a more effective manner
- Develop a shared vision of an evolving and sustainable health care system for the future by working in collaboration with and reinforcing partnerships with other stakeholders, including academic health centres, governments, communities and other relevant professional and non-professional organizations
- Advocate for the services and resources needed for optimal patient care

8. Scientific attitude and Scholarship

The student will utilize sound scientific and/or scholarly principles during interactions with patients and peers, educational endeavors, research activities and in all other aspects of their professional lives. Program objectives should enable the students to:

- Engage in ongoing self-assessment and structure their continuing professional education to address the specific needs of the population
- Practice evidence-based by applying principles of scientific methods
- Take responsibility for their educational experiences
- Acquire basic skills such as presentation skills, giving feedback, patient education and the design and dissemination of research knowledge; for their application to teaching encounters

9. Lifelong learning

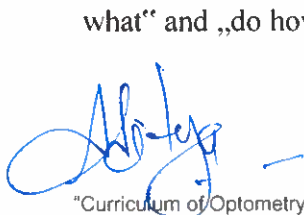
The student should be committed to continuous improvement in skills and knowledge while harnessing modern tools and technology. Program objectives will aim at making the students being able to:

- Perform objective self-assessments of their knowledge and skills; learn and refine existing skills; and acquire new skills
- Apply newly gained knowledge or skills to patient care
- Enhance their personal and professional growth and learning by constant introspection and utilizing experiences
- Search (including through electronic means), and critically evaluate medical literature to enable its application to patient care
- Develop a research question and be familiar with basic, clinical and translational research in its application to patient care
- Identify and select an appropriate, professionally rewarding and personally fulfilling career pathway

Introduction of salient elements in Allied and Healthcare education

Competency-based curriculum

A significant skill gap has been observed in the professionals offering healthcare services irrespective of the hierarchy and level of responsibility in the healthcare settings. The large variation in the quality of services is due to the diverse methodologies opted for healthcare education and the difference in expectations from a graduate after completion of a course and at work. What one is expected „to perform“ at work is assumed to be learned during the course, however, the course design focuses on what one is expected „to know“. The competency-based curriculum thus connects the dots between the „know what“ and „do how“.





The efficiency and effectiveness of any educational programme largely depends on the curriculum design that is being followed. With emerging medical and scientific knowledge, educators have realized that learning is no more limited to memorizing specific lists of facts and data; in fact, by the time the professional aims to practice in the healthcare setting, the acquired knowledge may stand outdated. Thus, competency-based education is the answer; a curricular concept designed to provide the skills that professionals need. A competency-based program is a mix of skills and competencies based on individual or population needs (such as clinical knowledge, patient care, or communications approaches), which is then developed to teach relevant content across a range of courses and settings. While the traditional system of education focuses on objectives, content, teacher-centric approach and summative evaluation; competency-based education has a focus on competencies, outcomes, performance and accomplishments. In such a case, teaching activities are learner-centered, and evaluation is continuous and formative in structure. The competency-based credentials depend on the demonstration of a defined set of competencies which enables a professional to achieve targeted goals. Competency frameworks comprise of a clearly articulated statement of a person's abilities on the completion of the credential, which allows students, employers, and other stakeholders to set their expectations appropriately.

Considering the need of the present and future healthcare delivery system, the curriculum design depicted in this handbook thus will be based on skills and competencies.

Credit hours

Globally, a need exists for the use of a fully convertible credit-based system that can be accepted at other universities. It has now become imperative to offer flexible curricular choices and provide learners mobility due to the popularity of initiatives such as „twinning programmes“, „joint degrees“ and „study abroad“ programmes.

In order to ensure global acceptability of the graduates, the current curriculum structure is divided into smaller sections with focus on hours of studying which can be converted into credit hours as per the international norms followed by various other countries.

More importantly the allied and health care professions are now defined for its qualification of the degree in terms of completion or coverage of academic hours. The definition of the allied health and health care professional as per the NCAHP Act is provided below:

“**Allied Health Professional**” includes an associate, technician or technologist who is trained to perform any technical and practical task to support diagnosis and treatment of illness, disease, injury or impairment, and to support implementation of any healthcare treatment and referral plan recommended by a medical, nursing or any other healthcare professional, and who has obtained any qualification of diploma or degree under this Act, the duration of which **shall not be less than two thousand hours** spread over a period of two years to four years divided into specific semesters;

“**Healthcare Professional**” includes a scientist, therapist or other professional who studies, advises, researches, supervises or provides preventive, curative, rehabilitative, therapeutic or promotional health services and who has obtained any qualification of degree under this Act, the duration of which **shall not be less than three thousand six hundred hours** spread over a period of three years to six years divided into specific semesters.

Integrated structure of the curriculum

Vertical integration, in its truest sense, is the interweaving of teaching clinical skills and knowledge into the basic science years and, reinforcing and continuing to teach the applications of basic science concepts during the clinical years. (Many efforts called „vertical integration” include only the first half of the process).

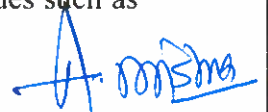
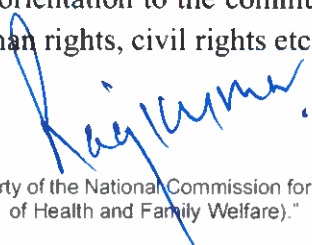
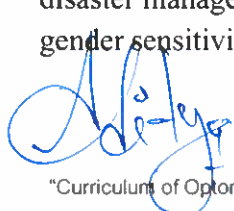
Horizontal integration is the identification of concepts or skills, especially those that are clinically relevant, that cut across (for example, the basic sciences), and then putting these to use as an integrated focus for presentations, clinical examples, and course materials. e.g. Integration of some of the basic science courses around organ systems, e.g., human anatomy, physiology, pathology; or incorporating ethics, legal issues, finance, political issues, humanities, culture and computer skills into different aspects of a course like the Clinical Continuum.

The aim of an integrated curriculum is to lead students to a level of scientific fluency that is beyond mere fact and concept acquisition, by the use of a common language of medical science, with which they can begin to think creatively about medical problems.

This new curriculum has been structured in a way such that it facilitates horizontal and vertical integration between disciplines; and bridges the gaps between both theory & practice, and between hospital-based practice and community practice. The amount of time devoted to basic and laboratory sciences (integrated with their clinical relevance) would be the maximum in the first year, progressively decreasing in the second through the final years of the training, making clinical exposure and learning more dominant.³ However it may differ from course to course depending on the professional group.

Introduction of foundation course in the curriculum

The foundation course for allied and healthcare professions is an immersive programme designed to impart the required knowledge, skills and confidence for seamless transition to the second semester of a professional allied and healthcare course. Post admission, the foundation course is designed for a period of 6 months to prepare a student to study the respective allied and healthcare course effectively and to understand the basics of healthcare system. This aims to orient the student to national health systems and the basics of public health, medical ethics, medical terminologies, communication skills, basic life support, computer learning, infection prevention and control, environmental issues and disaster management, as well as orientation to the community with focus on issues such as gender sensitivity, disability, human rights, civil rights etc.



Though the flexibility to the course designers have been provided in terms of – modifying the required numbers of hours for each foundation subject and appropriate placement of the subject across various semesters.

Learning methodologies

With a focus on self-directed learning, the curriculum will include a foundation course that focuses on communication, basic clinical skills and professionalism; and will incorporate clinical training from the first year itself. It is recommended that the primary care level should have sufficient clinical exposure integrated with the learning of basic and laboratory sciences. There should also be an emphasis on the introduction of case scenarios for classroom discussion/case-based learning.

Healthcare education and training is the backbone of an efficient healthcare system and India's education infrastructure is yet to gain from the ongoing international technological revolution. The report „*From Paramedics to Allied Health: Landscaping the Journey and way ahead*“, indicates that teaching and learning of clinical skills occur at the patient's bedside or other clinical areas such as laboratories, augmented by didactic teaching in classrooms and lecture theatres. In addition to keeping up with the pace of technological advancement, there has been a paradigm shift to outcome-based education with the adoption of effective assessment patterns. However, the demand for demonstration of competence in institutions where it is currently limited needs to be promoted. The report also mentions some of the allied and healthcare schools in India that have instituted clinical skill centres, laboratories and high-fidelity simulation laboratories to enhance the practice and training for allied and healthcare students and professionals. The report reiterates the fact that simulation is the replication of part or all of a clinical encounter through the use of mannequins, computer-assisted resources and simulated patients. The use of simulators addresses many issues such as suboptimal use of resources and equipment, by adequately training the manpower on newer technologies, limitations for imparting practical training in real-life scenarios, and ineffective skills assessment methods among others. The table mentioned below lists various modes of teaching and learning opportunities that harness advanced tools and technologies.

Since-2021

Table 1 Clinical learning opportunities imparted through the use of advanced techniques¹

Teaching modality	Learning opportunity examples
Patients	Teach and assess in selected clinical scenarios
	Practice soft skills
	Practice physical examination
	Receive feedback on performance
Mannequins	Perform acquired techniques
	Practice basic procedural skills
Simulators	Apply basic science understanding to clinical problem solving
	Practice teamwork and leadership
	Perform cardiac and pulmonary care skills
	Apply basic science understanding to clinical problem solving
Task under trainers	As specific to Optometry related course





Assessment methods

Traditional assessment of students consists of the yearly system of assessments. In most institutions, assessments consist of internal and external assessments, and a theory examination at the end of the year or semester. This basically assesses knowledge instead of assessing skills or competencies. In competency-based training, the evaluation of the students is based on the performance of the skills as per their competencies. Hence, all the three attributes – knowledge, skills, and attitudes – are assessed as required for the particular competency. Several new methods and tools are now readily accessible, the use of which requires special training. Some of these are given below:

- Objective Structured Clinical Examination(OSCE), Objective Structured Practical Examination (OSPE), Objective Structured Long Examination Record(OSLER)
- Mini Case Evaluation Exercise(CEX)
- Case-based discussion(CBD)
- Direct observation of procedures(DOPs)
- Portfolio
- Multi-source feedback
- Patient satisfaction questionnaire

An objective structured clinical examination (OSCE) is used these days in a number of allied and healthcare courses, e.g. Optometry, Physiotherapy, and Radiography. It tests the performance and competence in communication, clinical examination, and medical procedures/prescriptions. In physiotherapy, orthotics, and occupational therapy, it tests exercise prescription, joint mobilization/manipulation techniques; and in radiography it tests radiographic positioning, radiographic image evaluation, and interpretation of results. The basic essential elements consist of functional analysis of the occupational roles, translation of these roles (“competencies”) into outcomes, and assessment of trainees' progress in these outcomes on the basis of demonstrated performance. Progress is defined solely by the competencies achieved and not the underlying processes or time served in formal educational settings. Most methods use predetermined, agreed assessment criteria (such as observation check-lists or rating scales for scoring) to emphasize on frequent assessment of learning outcomes. Hence, it is imperative for teachers to be aware of these developments and they should suitably adopt them in the allied and healthcare education system.

Chapter 2

Methodology of Curriculum Development

Chapter 2: Methodology of curriculum development

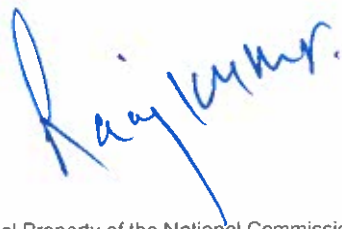
With the release of the report „From Paramedics to Allied Health: Landscaping the journey and the way ahead“, the Ministry of Health and Family Welfare prioritized the key recommendations and concerns raised by various allied and healthcare professionals groups and experts as indicated in the report. One of the major recommendations in the report was the need for standardization of curriculum and pedagogic requirements for the major allied and healthcare professional courses.

Following the NCAHP Act and aligning with the provisions for the regulation and maintenance of standards of education and services by allied and healthcare professionals, the need for uniform standard curriculum and up gradation of the curriculum according to the current needs of the country is sought. Considering the standards of the professions from across countries and referring to the changes in the curricula across international and national reputed universities and institutions, this curriculum including a comprehensive and globally acceptable set of educational standards based on a skills and competencies approach was arrived at. Opinions of key members of the profession were also sought.

Steps undertaken in the curricula review process –

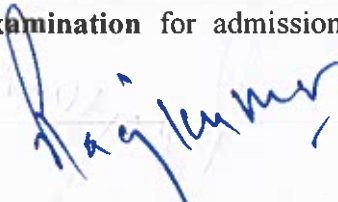
The common minimum optometry curriculum (CMOC) was first released in the year 2010 and the same was approved and uploaded in the Ministry of Health and family Welfare, Government of India in the year 2016 and available in the public domain for the institutions and universities to follow.

A meeting was convened on 21.03.2023 with the Interim Commission subject experts followed by a series of meetings with experts from across the country from 22.03.2023 to 25.03.2023 to revise the existing model curricula of Optometry. Several issues were discussed pertaining to the courses running in the country including nomenclature issues, lack of practical exposure, mushrooming of institutions, and lack of educational standards among several others.

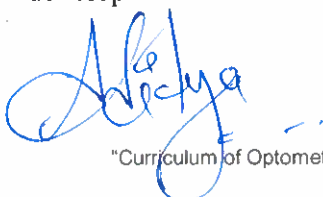


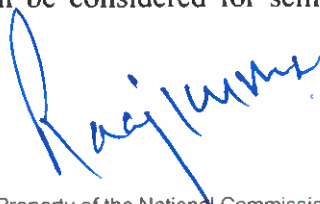
All the experts deliberated on the issues and a consensus was attained on the following thematic areas.

1. **Minimum curricula guidelines** are to be designed for Optometry profession.
 - Curricula should be patient-centric and futuristic.
 - Must include the latest advancement in technology.
 - Should be aligned with global standards and allow global mobility
2. **All programs should be delivered in full-time mode** and no institution should deliver any part-time or distance program in the healthcare sciences.
3. **Curricula must consider:**
 - Definition of the profession
 - Entry criteria to the profession
 - Entry qualification to the profession- Bachelor level programs desired in the profession other than entry qualification
 - Nomenclature of the qualifications
 - Duration of each level of the program with the duration of the internship.
 - Must have competencies at the end of each level and competencies must drive the curriculum content.
 - Program evaluation framework/ assessment at the end of each program
 - Number of desired faculty (with hierarchy/ designation) and defined minimum qualifications for each level of the program
 - Batch size and student and faculty ratios
 - Details of reference books, journals and desirable and essential equipment must also be considered.
4. A pre-determined credit-based system is to be followed for Optometry that ensure a basic minimum competency in essential subjects:
 - Credits and the number of hours must be allocated to each subject.
 - While lateral entry and bridge programs can be devised for existing professionals for entry, multiple exits may not be implemented.
5. **Common entrance mechanism to be considered for Optometry programs:**
 - **Universities can consider a common entrance exam** along with **50% in 10+2 science** (Biology and/or Mathematics as per the requirement of the professions) or equivalent or **University/State entrance examination** for admissions in the allied and healthcare programs.



- **Remedial Biology/ Mathematics is to be considered if knowledge is desired in the domain** and the entry criteria allow students without qualifying the same subjects in 10+2 or equivalent.
6. **The medium of teaching should be „English“**
- Students from other boards without English as a compulsory subject may be encouraged to pick English as an elective from available resources on Swayam and similar platforms.
 - The completion of the course will not lead to any university course credit (non-university course).
7. **Competency framework** (including performance criteria and related knowledge, skill and behaviors) to be included in each level of the program.
- **Competencies should be measurable and aligned with assessments.**
 - **Foundations Courses** – may be spread across the length of the program and weightage to the content/ number of hours/ credits may vary as per the requirement of individual professions.
 - Soft skills and communication to be focused.
8. All programs must have a mandatory internship
- The length of the internship will be determined by the extent of competencies to be attained by the candidate after the program.
 - Clinical programs can also mandate **rotatory internships** to increase the level of clinical exposure to the students
 - Teaching institutions should be accountable for ensuring the internship of the students in the affiliated hospital, as it is part of the academic program.
 - Standalone institutions must have a MoU with either a medical college or hospital or healthcare facility as per the guidelines (desired number of OPD etc.) defined in the curriculum to ensure practical exposure to the students.
 - MoU to also define the clinical supervision of the students -institutional staff or clinical preceptors can be considered.
 - Stipend of reasonable amount must be paid for internship students.
 - Internships cannot be reflected as work experience as those are part of the academic program.
 - Studentship or observership must also be built into the curriculum.
 - Simulation and skill labs can be used for practicing skills specific to the program if available in the initial years of observership/ studentship.
 - Some hours in every semester can be considered for seminars/workshops on new developments/ technologies.

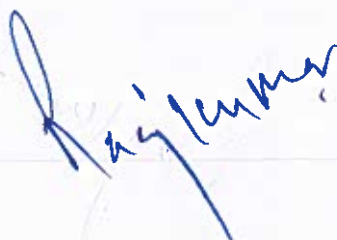






- If the clinical facility is not within the same campus, transportation should be provided to the students and interns.
 - All practical skills must be supervised and recorded in a digital Logbook and skills to be evaluated after the completion of the internship.
9. Masters program should be promoted to develop specialization in the field and generate trained faculty in the field
- All Master programs must focus on research and engage with industry partners to promote innovation and development in the field
 - Industry experts can be engaged as guest faculty/ conduct seminars under the framework of programs.
10. It was agreed upon that an exit examination (including testing of skills and competencies) can be potentially conducted by a third-party agency or organization as eventually identified by the ICAHP/ NCAHP. This can also evolve as a licensure examination for Optometry professionals.

An update from the existing CMOC was done with the support of the new taskforce members. The Ministry has appointed new members of the task force from various regions of India to ensure wide geographic representation, catering to diverse needs across the nation. Feedback on amendments to the syllabus scheme, including program duration, incorporation of recent developments in courses, alterations in course positioning and credit distribution, was solicited from task force members and institutional representatives. Meetings were convened multiple times, totaling approximately 12 to 15 sessions, each lasting 2 to 3 hours, resulting in a cumulative effort of 30 to 40 hours to finalize the curriculum. Additionally, input was sought on assessment methods and faculty requirements, with relevant updates made to textbooks. Competencies pertaining to knowledge, skills, and attitudes were delineated for both undergraduate and postgraduate programs. Following the submission of the curriculum by the task force to the Ministry, it was made available to the public for feedback. A total of 94 opinions were received, which were subsequently forwarded by the Ministry to the task force for their review. Following public feedback, task force members extensively deliberated on each aspect over 7 to 8 meetings, spanning approximately 20 to 25 hours. Subsequently, after thorough examination and discussion, the new curriculum was formulated.


Chapter 3

Background of the profession

Chapter 3: Background of the profession

Statement of Philosophy– Why this profession holds so much importance

An estimated 456 million people of India's population of 1.12 billion people require vision correction (spectacles, contact lenses or refractive surgery) to be able to see and function for learning, work and life in general. Twenty six million people are blind or vision impaired due to eye disease. A further 133 million people, including 11 million children, are blind or vision impaired simply from lack of an eye examination and an appropriate pair of glasses (uncorrected refractive error).⁴

Blindness and vision impairment place a significant economic burden on families, communities and society at large – due to lost productivity, as well as the cost of education and rehabilitation. About 85% of all vision impairment and 75% of blindness globally could be avoided, prevented or cured if the appropriately trained personnel and care facilities existed.

The World Health Organization and the International Agency for the Prevention of Blindness (IAPB) launched Vision 2020: The Right to Sight" in 1999 to prevent blindness. While acknowledging progress in the last decade to combat blindness, IAPB proposed "2030 In Sight" to ending avoidable blindness across various countries.⁵ There are currently 1.1 billion people living with vision impairment worldwide but without access to services. Appropriate interventions are required to tackle this enormous burden, which otherwise will rise to 1.8 billion people by 2050.

"World Report on Vision" released by the World Health Organization calls for unified efforts in bringing down blindness and vision impairment through „integrated people centered eye care" that would target „universal health coverage and march towards achieving the third Sustainable Development Goal: Health and Wellbeing for all. 4

IAPB proposed through its action plan document on „2030 In Sight" about the ways in which plans need to be geared to achieve the goals of eye health and making eye health a priority through three important steps, "Elevate", "Integrate" and "Activate".⁵



The two key areas that were launched by the World Health Organisation during World Sight Day 2022 were the eREC and eCSC. i.e. effective Refractive Error Coverage and effective Cataract Surgical Coverage.⁶ The contributions of optometrists in the eREC needs no mention. It is important that optometrists are pivotal in tackling the huge demand of refractive errors and the vision impairment caused by the uncorrected refractive errors. Strategic efforts are important to tackle the huge burden and also impart professional refractive services to all. In this process it is important that optometrists would be able to provide comprehensive services rather than just refractive services alone.

About Optometry

Optometry means a health care profession that is autonomous and concerned especially with examining the eye for defects and faults of refraction, with prescribing correctional lenses, eye exercises and/or visual rehabilitation care for visually impaired, with diagnosing diseases of the eye, and with treating such diseases or referring them for treatment.

Optometry as a profession has the primary public health responsibility for eliminating uncorrected refractive error (the leading cause of vision impairment globally). As primary eye care practitioners, optometrists have a vital role in detecting potentially serious eye diseases such as cataract, glaucoma and Diabetic retinopathy, age-related maculopathy, as well as general health conditions such as hypertension and diabetes, which means optometrists can also help alleviate the burden of other causes of blindness through diagnosis, referral and in some cases co-management. Optometry can and should play a leading role in eye care provision at the primary level, and can also contribute at secondary and tertiary levels where possible, working with ophthalmologists and other eye care providers towards the unified goal of combating blindness.

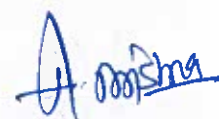
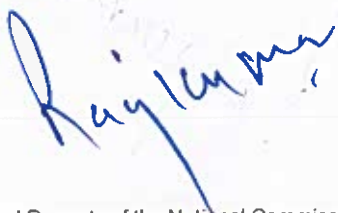
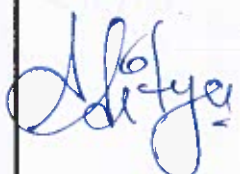
Recognition of Title and qualification⁷

The recommended title for this group of professionals stands as the „Optometrist“.

Optometrists can choose several paths in their professional career. As other healthcare professionals, besides independent practice, they can choose academic or corporate careers in the growing eye and vision care industry.

Career Advancement Scheme (CAS)

In the academic path, career advancement scheme has been clearly laid down by NCAHP. Irrespective of the paths chosen, at entry level with a basic Bachelor of Optometry degree job openings may be available, but to grow in the profession, years of experience, coupled with post-graduation degrees may provide better opportunities. Academic performance indicators as per the NCAHP recommendations, key performance indicators as per the private sector may be followed.



As per the scope of Optometry practice, the job sectors are divided into the following areas:

- A. Corporate sector
- B. Independent practice
- C. Work for an optical chain or under an optical store
- D. Public health
- E. Industries/companies
- F. Eye care hospitals & institutions
- G. Education sector
- H. Scientific research
- I. Basic research and integrated professional areas

A. *Corporate Sector:* Optometrists are employed as professional service people under various lens manufacturing companies as well as contact lens companies. Some pharmaceuticals and surgical instrument companies (eye related) also employ them. Depending on performance there is a career path for the professional service staff and some optometrists have also risen to regional heads (Asia-pacific head).

B. *Independent practice:* As per the current practice standards, Optometrist can upon graduation open their independent clinics. Optometrists can also independently provide Tele consultation.

C. *Work for optical outlet / store:* The work environment and the responsibilities for working in an outlet / store would be similar to that of an independent practitioner.

D. *Public Health:* Optometrist as health care provider, may involve in epidemiological studies and collaborate with NGOs in service delivery of health care.

E. *Sports:* Optometrists may access and train in sports vision along with other professionals. The science of helping sportsmen reach peak levels of performance through the enhancement of visual systems.

F. *Industries/ Companies:* Optometrists involve in pre-employment vision screening, periodic eye check-up for employees, set vision standards for various occupations, help in occupational health professional in developing eye safety policy of the company, advise on appropriate eye safety wear and can-do awareness campaign among the employees especially on the usage of eye safety wear and protection. Optometrist also gives Vision related Fitness certificate for all occupations.



Clinical/ Public Health	Industry (Professional services/ marketing)	Eligibility and experience for direct recruitment	Eligibility and experience for promotion	Annual performance appraisal
Optometrist	Assistant Manager Professional Services	Clinical : B Optom or equivalent Industry: B Optom		Clinical: Proficiency CR, HOD appraisal/year , Achieving recommended CE credits Industry: Review by immediate supervisor, country lead, and HR guideline based on achievement against predefined KPIs
Consultant Optometrist	Manager Professional Services	Clinical: B Optom, M Optom	Clinical: Five years of experience as optometrist, Completion of additional degree	Clinical: Proficiency CR, Self- appraisal, HOD / Principal appraisal/year Achieving recommende d CE credits, completion of fellowships, conference presentations

Abhyasa

Raj Kumar

Amisha

		Industry: Optom Grad with 3-5 yrs experience	Industry: Achievement of KPIs	Industry: Review by immediate supervisor, country lead, and HR guideline based on achievement against predefined KPIs
Consultant Optometrist (Senior scale)/ Superintendent Optometrist	Senior / Area Manager Professional Services	Clinical: Five years of clinical experience with M Optom Industry: Optom Grad with 5-10 yrs experience Additional business / marketing skills	Clinical: Five years of experience as Consultant optometrist. M Optom is necessary for promotion to Consultant optometrist Industry: Achievement of KPIs	Clinical: Proficiency CR, HOD appraisal/ year, Achieving recommended CE credits, completion of fellowships, conference presentations Industry: Review by immediate supervisor, country lead, and HR guideline based on achievement against predefined KPIs

Aditya

Raj Kumar

Anshu

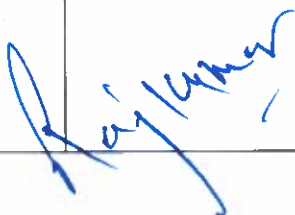
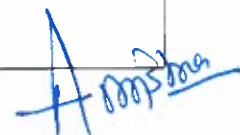
<p>Senior Consultant Optometrist</p>	<p>Associate Director, Professional Services (country)</p>	<p>Clinical: Eight years of experience with M Optom</p> <p>Industry: PG Optometry with 12+ yrs experience</p> <p>Relevant business / corporate skills</p>	<p>Clinical: Five years of experience as Superintendent Optometrist/ Consultant Optometrist (Senior scale)</p> <p>Or Completion of additional degree in optometry or relevant health discipline like public health/ psychology etc.</p> <p>Industry: Achievement of KPIs</p>	<p>Clinical: Proficiency CR, HOD appraisal/year , Achieving recommended CE credits, completion of fellowships, conference presentations</p> <p>Industry: Review by Country lead, Asia Region Prof Services Lead and HR guideline based on achievement against predefined KPIs for that year</p>
<p>Chief Optometrist</p>	<p>Associate Director Professional Services (group of countries)</p>	<p>Clinical: Fifteen years of experience with M Opt</p>	<p>Clinical: Five years of experience as Senior Consultant Optometrist. Completion of additional or degree in optometry or relevant health discipline</p>	<p>Clinical: Proficiency CR, HOD appraisal/year , Achieving recommended CE credits, completion of fellowships, conference presentations</p>

Abitya

Ranjit Kumar

Amita

		Industry: PG Optometry with Relevant business / cross sector project experience	like public health/ psychology etc. Industry: Achievement of KPIs	Industry: Review by Country lead, Asia Region Prof Services Lead and HR guideline based on achievement against predefined KPIs for that year
Head of Optometry	Director Professional Services (country OR group of countries)	Clinical: Twenty years of experience with M Opt or M Phil Optometry Industry: PG Optometry with Relevant industry / cross sector project experience	Clinical: Five years of experience as Chief Consultant Optometrist or Completion of additional degree in optometry or relevant health discipline like public health/ psychology etc. Industry: Achievement of KPIs	Clinical: Judgement on all aspects of Optometry and Protocol development on treatment delivery and quality assurance Industry: Review by Country lead, Asia Region Prof Services Lead and HR guideline based on achievement against predefined KPIs for that year

Director- Optometry	Vice President, Professional Services	Clinical: Twenty years of experience with M Opt Industry: PG Optometry with relevant industry / cross sector project experience	Clinical: Five years of experience as Director Industry: Leadership and successful career across different industries in Eye care	Clinical: Judgement on all aspects of Optometry and Protocol development on treatment delivery and quality assurance
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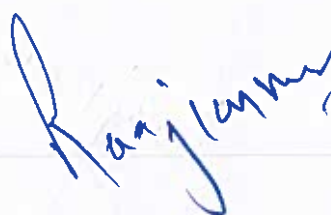
G. *Eye Care Hospitals & Institutions:* Optometrist play an important role to decrease the OPD patient burden on ophthalmic surgeons by providing primary eye care services such as comprehensive eye examination to detect, diagnose and co-manage. Optometrists working in hospitals and institutions offer services similar to independent practice, as mentioned above. In addition, acts as clinical trainer, researcher, scientist, administrator, clinical head or other suitable role as demanded.

H. *Educational Sector:* In educational sector, Optometrists employed as an academic/research/administrative faculty depending on experience and qualification as per the NCAHP guidelines. In educational sector, School of Optometry is headed by this recognised profession only.

I. *Research & Development:* Research areas in optometry are quite vast ranging from optics, contact lenses, binocular vision, glaucoma, retinal diagnostics, public health, low vision to primary eye, health care and related areas. Optometrists involve themselves in vision science research, not restricted with any specific areas.

J. *Tele-health:* Optometrists develop various digital applications/solutions for eye/vision care needs.

K. *Transformational/Translational research:* Optometrists with higher degree may involve in transformational research wherein the scientific discoveries arise from laboratory, clinical or population studies lead into clinical applications to reduce disease incidence, morbidity and mortality


A: Levels for careers in Clinic and Industry:

Clinical category: Job Description at various levels

- Comprehensive eye examinations.
- Being a part of Specialty optometry clinics, Clinical Training for B Optom.
- Clinical Training for B Optom, Handling specialty Clinics Independently.
- Clinical Training for M Optom, Handling specialty Clinics Independently.
- Residency training for fellows and M Optom, Handling specialty Clinics Independently.
- Residency training for fellows and M Optom, Residency management.
- Independent management of an optometry clinic (Initiating and implementing a clinic/specialty clinic)

Industry career – can be grouped into 2 categories based on patient facing / ECP facing role

- A. Retail industry (service to patient / customer) = Optical chains along with optical business division
- B. Product manufacturers (Corporate company to Eye Care Professional)



B: Levels for careers in Academics and Research:

Academic	Eligibility and experience requirement (on Direct recruitment)	Eligibility and experience requirement (on Promotion as per <u>NCAHP -CAS-Career Advancement Scheme</u>)
Clinical Instructor	B Optom or equivalent with a minimum clinical experience of 2 years	N.A
Assistant Professor-I	Bachelor's Degree in Optometry (B.Optom), Master's Degree in Optometry (M.Optom) with at least 55% marks (or an equivalent grade in a point scale wherever the grading system is followed) from a recognized University.	N.A.
Assistant Professor-II (Senior Scale)	N.A.	M.Optom degree with 3 years' experience as Assistant Professor-I
Assistant Professor-III (Selection Grade)	N.A.	3 years' experience as Assistant Professor-II
Associate Professor	Essential: A Master's Degree in Optometry (M.Optom) with eight years' experience as Assistant Professor. Desirable: i) Higher Qualification, such as Ph.D. degree in any discipline of Optometry recognised by the NCAHP UGC, and published work of high standard in peer-reviewed journals.	2 years experience as Assistant Professor-III (Selection Grade)

Professor	<p>Essential: Master's Degree in Optometry (M.Optom), with thirteen years experience.</p> <p>Desirable:</p> <p>i) Higher Qualification like Ph. D. in any subject of Optometry recognised by NCAHP, and</p> <p>ii) Published work of high standard in peer –reviewed journals.</p>	5 years experience as Associate Professor
Senior Professor	N.A.	5 years" experience as Professor
Dean	<p>Essential: Master's Degree in Optometry (M.Optom) with twenty eight years total experience, including five years" experience as Professor (Optometry).</p> <p>Note:</p> <p>i) Senior-most Professor shall be designated as the Principal /Dean.</p> <p>ii) Desirable: Higher qualification like Ph.D. in any subject of Optometry recognized by the NCAHP and published work of high standard in peer reviewed journals.</p>	7 years" experience as Senior Professor





Academic Levels for Direct Recruitment

C: Levels for careers in Research

Research	Eligibility and experience for Direct recruitment*	Eligibility and experience for promotion*
Scientist –B	B Optom or equivalent with a minimum clinical experience of 2 years	N.A.
Scientist -C/Scientist	B Optom, M Optom	N.A.
Scientist -D/ Scientist	Five years of experience as Scientist-C/Scientist.	Five years of experience as Scientist-C /Scientist
Scientist –E/ Scientist/ Sr. Scientist	Five years of experience as Scientist -D/ Scientist	Five years of experience as Scientist -D/ Scientist
Scientist –F/ Scientist/ Sr. Scientist	Fifteen years of experience as Scientist D/ Scientist PhD is mandatory for Scientist - F/ Scientist/ Sr. Scientist	Five years of experience as Scientist E/ Scientist/ Sr. Scientist
Scientist –G/ Research Head/ Principal Scientist	Fifteen years of experience as Scientist Since-2021	Five years of experience as Scientist F/ Scientist/ Sr. Scientist
Additional Director General	20 years of experience as Scientist	Two years of experience as the Scientist –G/ Research Head/ Principal Scientist

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1.4 Responsibilities of an optometrist: (Reference: Indian Entry Level Optometry Competency Skills document as stated in Chapter 5 below)

1. Keep patients' eye, vision and general health as first priority
2. Respect the rights and dignity of patients regarding their health care decisions
3. Advise the patients whenever consultation with, or referral to, another optometrist or other healthcare professional as appropriate
4. Ensure confidentiality and privacy of patients' health and other personal information
5. Strive to ensure that all people have access to eye and vision care
6. Advance professional knowledge and skills
7. Maintain practice in accordance with professional health care standards
8. Promote ethical and cordial relationships with all members of the health care community
9. Uphold the dignity, honour and integrity of the optometric profession

1.4.1 Roles and Responsibilities :

1.4.1.1.1 OPTOMETRY

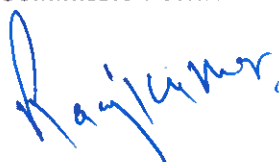
1. Examination, prescribing, management, and dispensing of various optical aids – spectacles, contact lens, low vision aids/assistive devices – for people of all age groups.
2. Diagnosis, management/co-management of ocular and related systemic diseases/conditions for people of all age groups.
3. Diagnosis and management of Non Strabismic/strabismic binocular vision anomalies through non-invasive procedures.
4. Eye care services at community level – examples: school screening, cataract screening, glaucoma screening, diabetic retinopathy screening, occupational optometry, Doorstep eye care.
5. Optometric/ Genetic counselling on eye care of patients with partial sight, including colour blindness and hereditary eye diseases.
6. Public education on eye care, ocular hygiene, nutrition and environmental effects on eye.
7. Examination and visual rehabilitation of patients with low vision and profound visual impairment.)

Definition of Optometrist

“Optometrists are primary health care practitioners of the eye and visual system who provide comprehensive eye and vision care, which includes refraction and dispensing, detection/diagnosis and co-management of disease in the eye and the rehabilitation of conditions of the visual system”

Optometrist also means a person having-

- i. Graduate degree in optometry obtained after the completion of a full time on campus course of 5 years which includes supervised clinical training from any university recognized by the University Grants Commission established under the University Grants Commission Act 1956; or*



ii. Post graduate degree in optometry after completion of a full time on campus course of two years and /or PhD in the same.

iii. Diploma in Optometry will be encouraged to upgrade to degree through lateral entry courses till an accepted timeline. After this period they will not be designated as Optometrist. The program will be phased out thereafter.

According to International standard classification of Occupations (ISCO -08, Volume I, International Labour Office, Geneva, 2012, Page 13,14), optometry is classified under occupations (Major Group : Professionals(2); Sub Major Group : Health Professionals(22); Minor Group : Other Health professionals (226) ; Unit Group : Optometrist (ISC code-2267))at Skill Level 4 typically involving the performance of tasks that require complex problem-solving, decision making and creatively based on an extensive body of theoretical and factual knowledge in a specialised field. Such skill are usually obtained as the result of study at a higher educational institution for a period of 3-6 years leading to the award of a first degree or higher qualification (ISCED-97 Level 5a or higher)

Education of the Optometry

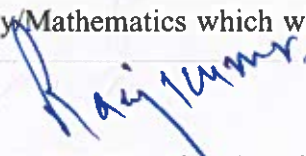
When developing any education programme it is necessary that programme planning should be outcome-based, meeting local and national manpower requirements, personal satisfaction and career potential for the professionals with supporting pathway in the development of the profession. One of the major changes is the shift from a focus based on traditional theoretical knowledge and skills to competency based education and training. Optimal education/training requires that the student is able to integrate knowledge, skills and attitude in order to be able to perform a professional act adequately in a given situation.

Thus, the following curriculum aims to focus on skills and competencies based approach for learning and are designed accordingly. The curriculum is prescriptive and is designed with an aim to standardize the content across the nation. As stated above the focus of the profession is to create qualified and skill manpower in the field of Optometry through the following levels of higher education

1. Bachelor of Optometry (B. Optom)
2. Master of Optometry (M. Optom)
3. PhD

Entry requirements

As per the **NCAHP** guidelines it is recommended that the students entering the Optometry programme at under graduate level should have completed the recognized secondary school studies as the qualification stipulated for B. Optom is 10+2 with Sciences (Biology/Mathematics) or equivalent from a recognized university or board with 50% marks in Physics, Chemistry, Biology/Mathematics which will provide the foundation for



and prepare them for higher education studies. The student should have minimum 17 years of age as on 31st December of the admission year.

Students entering the Optometry programme at post graduate level should have completed the Bachelor of Optometry in a regular full time on campus mode with a minimum of 60% marks from a recognised university.

Students entering the PhD program should be as per the *NCAHP* regulations.

Candidates who have completed diploma in optometry (after completion of 10+2 with science) or its equivalent can also join the undergraduate course. They would be eligible to join in 2nd year of optometry if the numbers of hours are in line with the bachelor's program of first year. The total education therefore would be (2 year diploma + 3 year of undergraduate studies). The final year of the program (lateral entry) would be internship.

Nomenclature

Nomenclature of both under graduate and postgraduate programs should be uniform across the country. The nomenclature for the undergraduate program is "Bachelor of Optometry" (B.Optom), whereas for a postgraduate program is "Master of Optometry" (M.Optom).

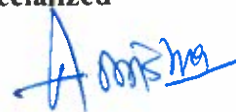
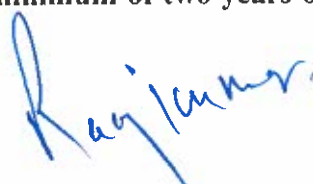

Course duration

It is recommended that any programme developed from this curriculum should have a minimum of the following duration to qualify as an a professional course in optometry -

- 5 year programme (including 1 year of clinical training /internship)- Bachelor's degree level
- 2 year programme- Master's degree level
- PhD in relevant discipline (Optometry) should be in accordance with *NCAHP* regulations (Minimum standards and procedures for award of PhD degrees). Shodhganga theses repository/registration is also mandatory.

The emphasis initially should be on the academic content establishing a strong scientific basis and in the latter year on the application of theory to clinical/reflective practice. In Bachelor degree programme minimum one year should be devoted to clinical practice and this should be on a continuum of rotation from theory to practice over the programme. The aim of the 5 year degree programme is to enable the development of the Optometrist as a key member of the eye care team and to enable him/her to execute basic assessment/planning/delivery of eye care services.

With the change in the disease dynamics and multifold increase in the cases needing eye care treatment, it is imperative that a well-structured programme of postgraduate education is also encouraged so as to enhance research capacity within the country to widen the scope of clinical practice for the profession. Thus, **a master's degree programme is recommended with minimum of two years of education in specialized field of Optometry.**



The post graduate students can contribute significantly in research and academics. PhD plays a significant role in the academics / research systems. The current curriculum has indicated prescriptive guidelines for the career and qualification map.

Exit exam / Licensure exam:

There shall be a third party exit / licensure exam at the end of the Internship (5th year) for Bachelor's program. The exit examination, or licensure examination, serves as a requisite assessment for clinical practice eligibility. While the university may confer a degree completion certificate, it is contingent upon the successful clearance of the exit examination for clinical practice privileges within India. Additional criteria and regulations governing the exit examination are in accordance with the guidelines established by the National Commission for Academic and Health Professions (NCAHP).

Teaching faculty and infrastructure

The importance of providing an adequate learning environment for the students cannot be over emphasized. Both the physical infrastructure and the teaching staff must be adequate.

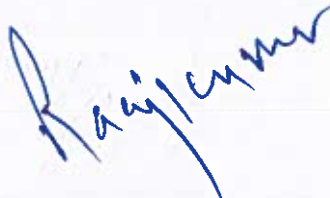

Teaching areas should facilitate different teaching methods. Where students may share didactic lectures with other disciplines large lecture theatres may be appropriate, but smaller teaching areas should also be provided for tutorial and problem/case-based learning approaches. In all venues where students are placed the health and safety standards must be adhered to.

It is recommended that a faculty and student ratio of 1:15 and 1:3 to be followed for the undergraduate program and post-graduate programs respectively. The teaching load will be based on the norms set by the National and State Councils for the designated post.

Faculty development programs should be provided by the institute and undertaken by the faculty mandatorily on a regular basis.

Job availability

As per ILO documentation, employers worldwide are looking for job applicants who not only have technical skills that can be applied in the workplace, but who also can communicate effectively, including with customers; can work in teams, with good interpersonal skills; can solve problems; have good ICT skills; are willing and able to learn; and are flexible in their approach to work. Graduates can expect to be employed in hospitals and private practices as Optometrist. A career in research, following the completion of a higher degree such as a PhD, is an option chosen by some graduates. Also, graduates are eligible for employment overseas where their qualifications, training and experience are highly regarded. With further experience, graduates may also be employed by equipment manufacturers and development specialists.



Graduates have good employment prospects, and will enter a field in which the demand for professionals has increased in recent years and will keep on increasing due to chronic conditions.

Job Opportunities: The job sectors for optometrist can be divided into the following areas:

1. Corporate sector
2. Private practice
3. Work for an optical chain or under an optical store
4. Public health
5. Industries/companies
6. Eye care hospitals & institutions
7. Education sector
8. Scientific research
9. Basic research and integrated professional areas

Corporate Sector:

Optometrists are employed as professional service people under various lens manufacturing companies as well as contact lens companies. Some pharmaceuticals and surgical instrument companies (eye related) also employ them. Depending on performance there is a career path for the professional service staff and some optometrist have also risen to regional heads (Asia-pacific head).

Private practice:

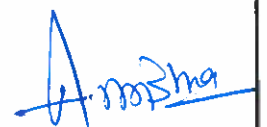
Optometrist upon graduation can open their optometry clinic with/without optical store. Currently many optometrists are practicing in their own clinic.

Work for optical chain:

The work environment and the responsibilities for working in a chain would be similar to that of a private practitioner.

Public Health:

Optometrist can also enter into the public health domain as health care providers. They could be involved in epidemiological studies, in primary health centres (PHC) and in SHC. Optometrists can collaborate with NGO in service delivery of health care.



Industries/ Companies:

Optometrist can involve in pre-employment vision screening, periodic eye check-up for employees, set vision standards for various occupations, help in occupational health professional in developing eye safety policy of the company, advise on appropriate eye safety wear and can do awareness campaign among the employees especially on the usage of eye safety wear and protection.

Eye Care Hospitals & Institutions:

Optometrists can provide vision care services like prescribing glasses, contact lens, provide comprehensive low vision care services, advice on vision therapy etc. They can also provide extended role in various eye clinics like managing diagnostic services and co-manage patients in an eye care institutional set up or a hospital set up. Optometrist also acts as clinical trainer, researchers, administrators and clinical heads.

Educational Sector:

Optometrists can be employed as faculty depending on experience and qualification. Optometrists also can head optometry schools or college. Academics can also be combined with clinical practice.

Research:

Research areas in optometry are quiet vast ranging from optics, contact lenses, binocular vision, glaucoma, retinal diagnostics, public health, low vision to primary eye and health care. Optometrists can involve himself in vision science researches, not restricted with any specific areas.

Translational research:

Vision scientists/ optometrists with higher degree can involve in transformational research wherein the scientific discoveries arises from laboratory, clinical or population studies lead into clinical applications to reduce disease incidence, morbidity and mortality.

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Chapter 4

Curriculum of Optometry

courses

Chapter 4: Curriculum

Background

Human resource development for eye care is a crucial factor which will determine the success of the IAPB recommended vision of „2030 In Sight“. Given the enormous numbers of people in India who are blind and vision impaired as a result of uncorrected refractive error and other avoidable causes, the time is right for India to regulate the profession of optometry, and increase the numbers of skilled eye care providers who can provide vision care to the people at all levels and in all areas of the country.

The academic development of optometry in India is a crucial part of the development of effective vision care and blindness prevention system in India. Optometry in India could, over the next decade, become capable of combating its huge blindness and impaired vision problem by travelling down the academic, professional and legislative pathway to become an effective health care profession.

The aims of the recommended curriculum are to produce Optometrist who are-

- Technically and clinically competent;
- Understand the theoretical basis for evidence based practice;
- Independently competent in vision care as defined;
- Effective members of the multidisciplinary team;
- Prepared to participate in or initiate research into practice;
- Can work according to registration requirements on the respective continents.

All aspects of Optometry have been considered in the development of this curriculum together with the identification of the roles expected for different levels of Optometrist based on their qualification and experience. The need for connecting the dots between the education and employment practices has been the road map for devising this curriculum.

Foundation course has also been designed to bring all the students at the same level of understanding with respect to basic healthcare related norms before the start of a career in a healthcare professional course. The foundation course is mandatory for all the allied and

healthcare professional courses, given that if it has been done at least at one level of qualification. For example-if a diploma holder has completed the foundation course and is willing to pursue the degree course, the candidate will directly get entry for next semester, however a pre-qualifier skill test will have to be satisfactorily completed, if not, then the candidate will have to undergo the first semester of foundation course again.

It is recommended that any program developed from this curriculum adhere to the following minimum duration to qualify as an entry-level professional in Optometry:

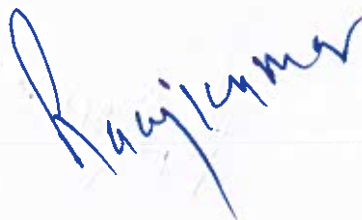
- **A 5-year program, inclusive of a one-year internship, at the Bachelor's degree level.**

Initially, the emphasis should be on academic content to establish a robust scientific foundation, with a later focus on the application of theory to clinical and reflective practice. Clinical postings should commence from the second year onwards in the Bachelor's degree program, following a continuum from theory to practical clinical experiences throughout the program.

The aim of the five-year degree program is to foster the development of Optometry professionals as independent healthcare practitioners and integral members of healthcare teams matching "**International standards**". This includes the ability to perform advanced diagnosis, prepare, plan, deliver, and prescribe Optometry services, as well as ensure quality assurance.

Given the evolving disease dynamics and increased demand for Optometry services, it is imperative to encourage well-structured postgraduate education programs. These programs aim to enhance research capacity domestically and expand the scope of clinical practice within the profession. Consequently, a Master's degree program is recommended, with a minimum duration of two years focusing on specialized fields of Optometry. Postgraduate students are expected to make significant contributions to research and academia.

Furthermore, recognizing the significant role of PhD holders in the academic system of Optometry, guidelines for PhD programs are also suggested in this curriculum.



4.2 Master of Optometry

Master of Optometry

Eligibility for admission:

Bachelor of Optometry or equivalent from a recognised university with minimum 5.5 CGPA

Duration of the course

The M Optom post graduate degree program is of two years duration.

Duration of the course: 2 years or 4 semesters.

Total hours –2355 (including clinical and research)

Medium of instruction:

English shall be the medium of instruction for all the subjects of study and for examination of the course.

Attendance:

A candidate has to secure minimum-

1. 75% attendance in theoretical
2. 80% in Skills training (practical) for qualifying to appear for the final examination.

Credit details:

1 hour lecture per week	1 credit
2 hours of tutorials per week	1 credit
2 hours of clinics per week	1 credit

Passing Criteria

Total of 50% marks in IA + UE and 50% marks in UE.



Master of Optometry [2 year programme]

Proposed Scheme

Year	Semester	Credits	Hours
1	1	24.5	525
1	2	22	510
2	3	28	630
2	4	28	690
Total		102.5	2355

Credit details:

One credit implies one hour lecture per week or two hours of laboratory/practical per week or two hours of clinics per week or two hours of Research project per week

A semester is considered to have 15 weeks. For example,

1 credit course = 15 hours of lectures per semester

3 credits course = 45 hours of lectures per semester

0.5 credit course = 15 hours of practical/laboratory per week

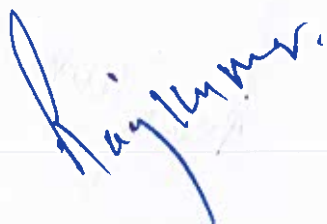
CL	CP	L	P
3	0.5	45	15

CL: Credit for Lecture

CP: Credit for Practicals

L: Hours for Lecture

P: Hours for Practicals



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

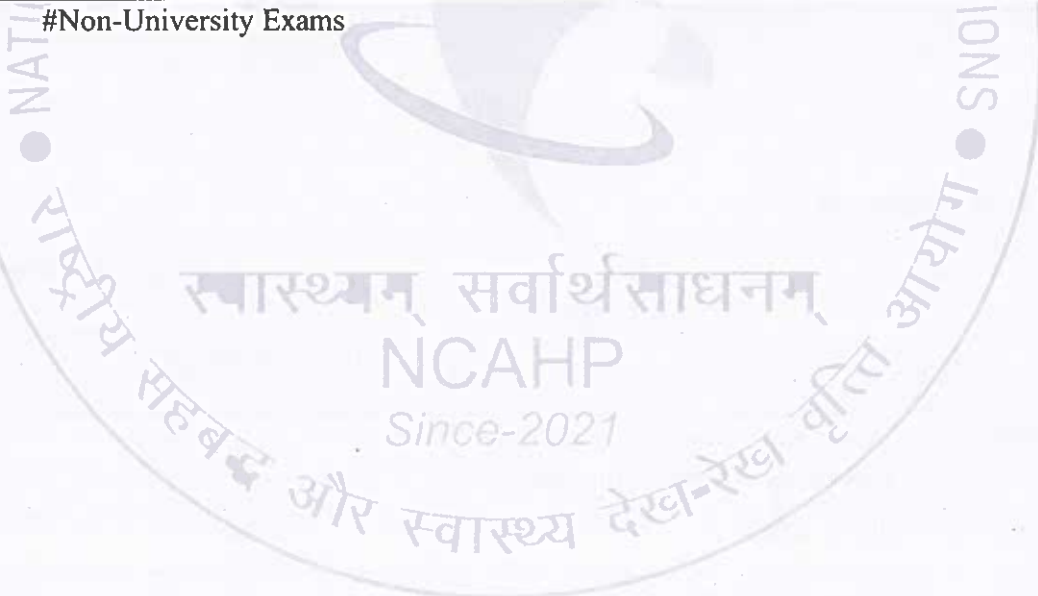
#Non-University Exams



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



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Third Semester

Sl. No.	Course Titles	Hours per semester		
		Lecture	Practical	Total
MOP301	Specialized clinical optometry- Contact Lens – 2	30		30
MOP302	Specialized clinical optometry- Binocular Vision	30		30
MOP303	Specialized clinical optometry- Rehabilitation	30		30
MOP304	Elective 2 [#]	30		30
MOP305	Scientific communication [#]	30		30
MOP306	Research Project-3	60		60
MOP307	General Clinics-3		180	180
MOP308	Specialty Optometry Clinics-3		180	180
MOP309	Community Outreach-3		60	60
TOTAL		210	420	630

#Non-University Exams

Fourth Semester

Sl. No.	Course Titles	Hours per semester		
		Lecture	Practical	Total
MOP401	Specialized clinical optometry - Vision Therapy and Neuro Optometry	30		30
MOP402	Elective 3 [#]	30		30
MOP403	Research Project-4	90		90
MOP404	General Clinics-4		240	240
MOP405	Specialty Optometry Clinics-4		240	240
MOP406	Community Outreach-4		60	60
TOTAL		150	540	690

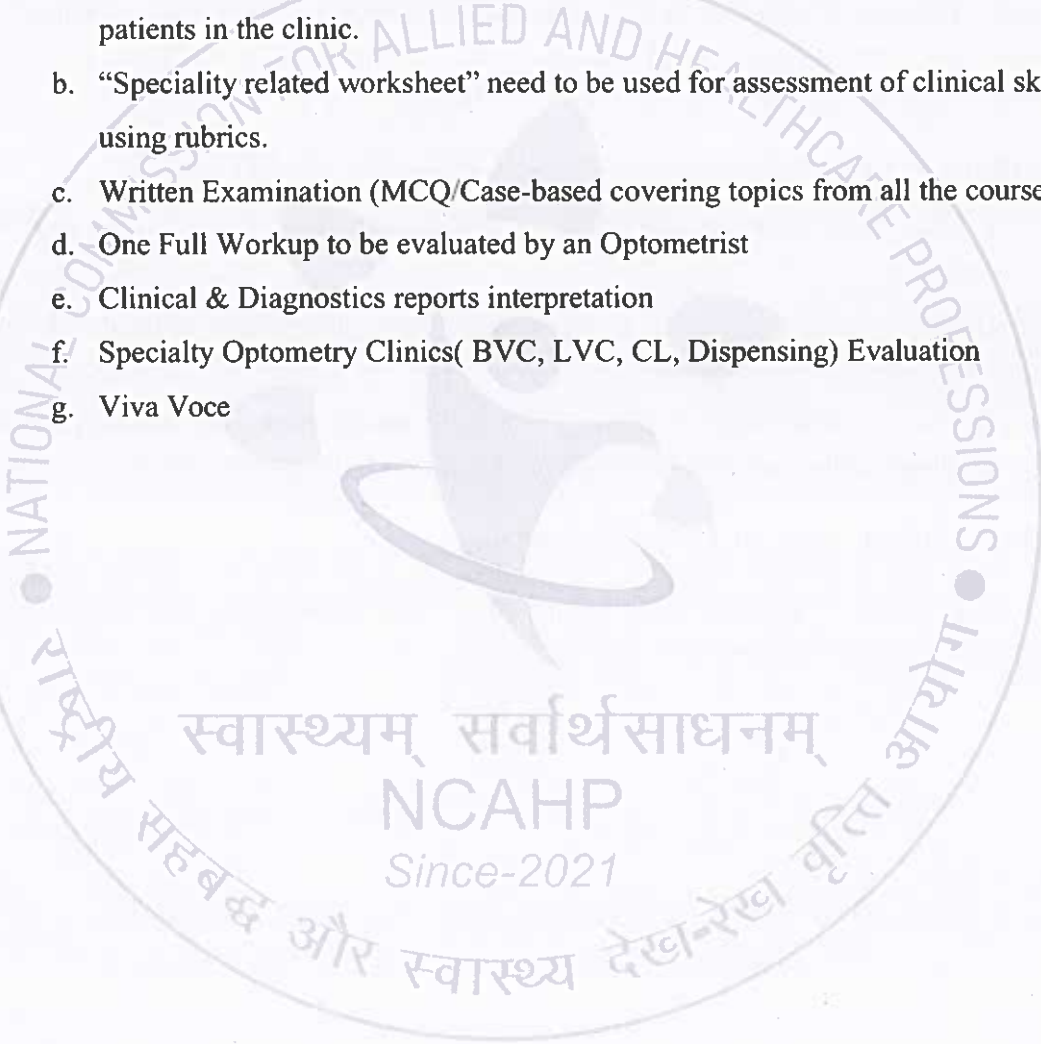
#Non-University Exams

Assessment:

Assessments should be completed by the academic staff, based on the compilation of the student's theoretical & clinical performance throughout the training programme. To achieve this, all assessment forms and feedback should be included and evaluated.

Clinical subjects MOP107, MOP108, MOP109, MOP205, MOP206, MOP207, MOP307, MOP308, MOP309, MOP404, MOP405, MOP406 need to follow the assessment pattern given below:

- a. Case Evaluation Exercise (CEX) MUST be done in each speciality with patients in the clinic.
- b. "Speciality related worksheet" need to be used for assessment of clinical skills using rubrics.
- c. Written Examination (MCQ/Case-based covering topics from all the courses)
- d. One Full Workup to be evaluated by an Optometrist
- e. Clinical & Diagnostics reports interpretation
- f. Specialty Optometry Clinics(BVC, LVC, CL, Dispensing) Evaluation
- g. Viva Voce



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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	<p>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.</p> <p>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</p>	15
2	<p>Genetics: Chromosome and Cell division –Molecular genetics– Clinical Genetics –Population genetics–Gene cell differentiations and Cell based therapy: Molecular genetics and ophthalmology</p> <p>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.</p> <p>Pathology: Introduction – Cell and Tissue damage, Mechanism of cell death – Inflammation –Neoplasia – Hamartomas – Choristomas – Teratoma –Tumors</p>	15
3	<p>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</p> <p>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</p> <p>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</p>	15

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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.

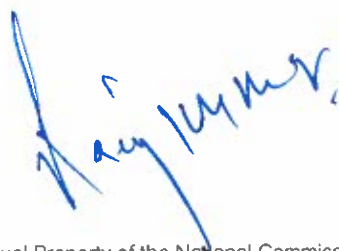
COURSE DESCRIPTION: This course is designed to provide exposure to diagnostics to ocular conditions and management options for ocular diseases.

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) Ultrasonography: (Ultrasound biomicroscopy, A-scan ultrasonography, B-scan ultrasonography, Pachymetry) 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

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

CL	CP	L	P
2	0	30	0

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.

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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.

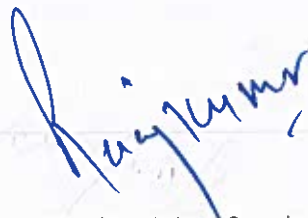
COURSE PLAN

Unit	Topics	Hours
1	<p>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?</p> <p>GEOGRAPHICAL INDICATIONS: What is a geographical indication? How is a geographical indication protected? Why protect geographical indications?</p>	10
2	<p>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.</p> <p>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?</p>	10
3	<p>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.</p> <p>ENFORCEMENT OF INTELLECTUAL PROPERTY RIGHTS: Infringement of intellectual property rights, Enforcement Measures</p>	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 literature 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

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COURSE PLAN:

Unit	Topic	Hours
1	<p>Curriculum: Types of curricula- subject centered, learner centered curriculum, problem-based curriculum, competency/ outcome based curriculum and its importance</p> <p>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</p> <p>Learning taxonomy- Bloom's taxonomy for cognitive domain, Krathwohl's affective domain taxonomy, Dave's Taxonomy for skill domain</p> <p>Learning objectives: Program objectives, course and unit objectives, framework the learning objectives, SMART objectives, horizontal and vertical integration of objectives.</p>	4
2	<p>Types of learners: Visual, auditory, Readers and kinaesthetic learners.</p> <p>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.</p> <p>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)</p>	5

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3	<p>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.</p> <p>Assessment reports and feedback: types of feedbacks, importance, reflective practice</p> <p>Evidence based teaching.</p> <p>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.</p> <p>Role of AIR in Education, Gyanvani, Countrywide Classroom, EDUSAT: Implications, ETV, Network. Evaluation of multimedia learning materials.</p>	6
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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

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

CL	CP	L	P
0	4	0	120

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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

**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.

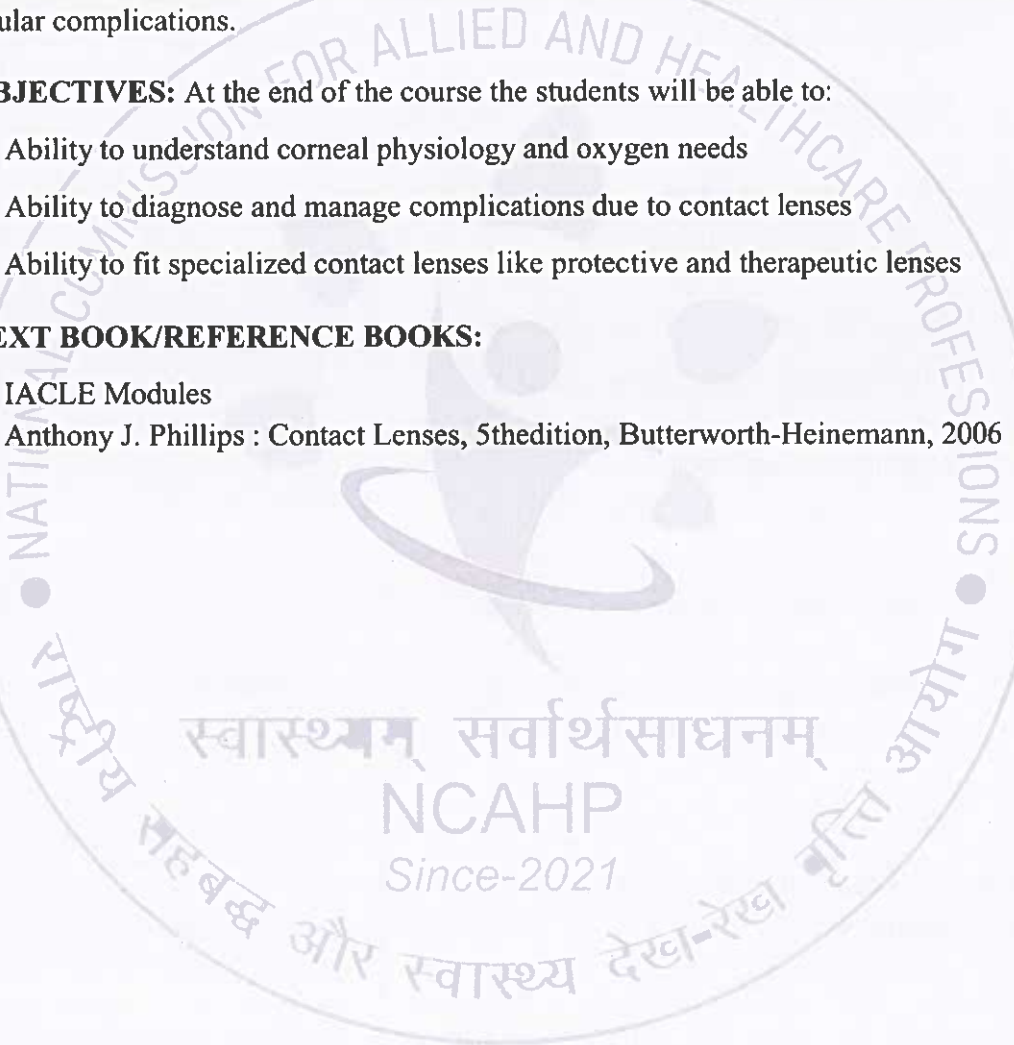
COURSE DESCRIPTION: Upon completion of the course, the student should be able to understand the fitting for soft and RGP contact lenses along with the management of ocular complications.

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, 5th edition, Butterworth-Heinemann, 2006



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PREREQUISITES: Ocular diseases, Basic Contact Lens

COURSE PLAN

Unit	Topics	Hours
1	Anatomy and Physiology of the Cornea and related Structures Tears and contact lenses	4
2	Optics and Lens Design Contact Lens Materials Clinical Instrumentation in contact lens practice	4
3	Soft contact lens fitting Toric Contact lens fitting	4
4	Rigid Gas Permeable corneal lens fitting Microbiology, Lens Care and Maintenance	4
5	Contact lens standards 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:

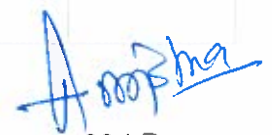
1. Christine Dickinson: Low Vision: Principles and Practice Low vision care, 4th edition, Butterworth-Heinemann, 1998
2. Sarika G, Sailaja MVS, E Vaithilingam: Practice of Low vision –A guide book, Medical Research Foundation, 2015.
3. Richard L. Brilliant: Essentials of Low Vision Practice, Butterworth-Heinemann, 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

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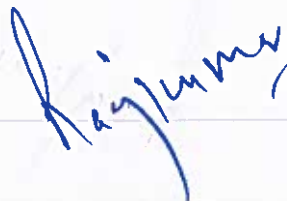
PREREQUISITES: Ocular Diseases, Basic Low vision care

COURSE PLAN

Unit	Topics	Hours
1	Visual Disorders – Medical Perspective 1. The Epidemiology of Vision Impairment 2. Vision Impairment in the pediatric population 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 1. Low Vision and Psychophysics 2. Visual Functioning in Pediatric Populations with Low Vision 3. Perceptual correlates of Optical Disorders 4. Functional aspects of Neural Visual Disorders of the eye and Brain 5. Visual Disorders and Performance of specific Tasks requiring vision	5
3	Optical and Non-Optical device 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	<p>Visual Disorders – The Psychosocial Perspective</p> <ol style="list-style-type: none"> 1. Developmental perspectives – Youth 2. Vision Impairment and Cognition 3. Spatial orientation and Mobility of people with vision impairments 4. Social skills Issues in vision impairment 5. Communication and language : Issues and concerns 6. Developmental perspectives on Aging and vision loss 7. Vision and cognitive Functioning in old age 	5
5	<p>Interactions of Vision Impairment with other Disabilities and sensory Impairments.</p> <ol style="list-style-type: none"> 1. Children with Multiple Impairments 2. Dual Vision and Hearing Impairment 3. Diabetes Mellitus and Vision Impairment 4. Vision Problems associated with Multiple Sclerosis 5. Vision Impairment related to Acquired Brain Injury 6. Vision and Dementia 7. Low Vision and HIV infection 	5
6	<p>The Environment and Vision Impairment: Towards Universal Design</p> <ol style="list-style-type: none"> 1. Indian Disabilities act 2. Children"s Environments 3. Environments of Older people 4. Outdoor environments 5. Lighting to enhance visual capabilities 6. Signage and way finding 7. Accessible Environments through Technology <p>Vision Enhancement Techniques: Optical and non-optical Vision Enhancement techniques</p>	5


ELECTIVE 1

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

CL	CP	L	P
2	0	30	0

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

INSTRUCTOR IN CHARGE: M Optom with experience in handling

CL	CP	L	P
4	0	60	0

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

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

CL	CP	L	P
0	6	0	180



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

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.

CL	CP	L	P
0	4	0	120

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.)



Third Semester

**SPECIALIZED CLINICAL OPTOMETRY-
CONTACT LENS 2**

CL	CP	L	P
3	1	45	30

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

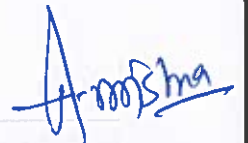
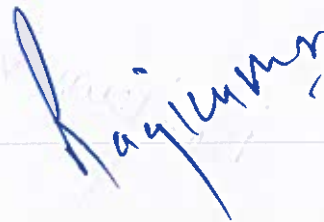
COURSE DESCRIPTION: Upon completion of the course, the student should be able to understand the contact lens fitting for compromised corneas and keratoconus. The student should also be able to understand the fitting philosophy of orthokeratology and myopia control.

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

1. Fit contacts lenses with all specialized contact lenses
2. Fit prosthetic contact lenses
3. Fit contact lens for paediatric group
4. Fit occupational contact lenses
5. Troubleshoot contact lenses related queries
6. Outline the available products available in the market and the sources
7. Understand the legalities to dispense contact lenses

TEXT BOOK:

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



PREREQUISITES: Specialized Clinical Optometry- Contact Lens I

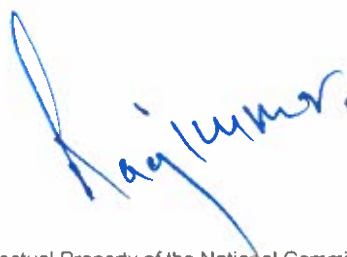
COURSE PLAN:

Unit	Topics	Hours
1	Introduction to advanced contact lens Microbiology and immunology in relation to contact lens wear, Pharmacology of contact lens solution; review of contact lens solution contents. Contact lens complications; causes and management and pathophysiology. Identification of lens deposits. Trouble shooting in CL related problems	2
2	Ability to fit specialized contact lenses: Keratoconus, Rose-K lenses, Mini scleral lenses, Hybrid lenses, Orthokeratology, Scleral lenses: Dry eyes, SJS, Post PK, Post C3R, Post LASIK ectasia	12
3	Contact lens prescription in different scenarios: Bifocal and Multifocal contact lenses, Ability to fit custom made ocular prosthesis, Cosmetic and prosthetic contact lens fitting. Ability to fit paediatric contact lenses, Ability to fit contact lens post PK and refractive surgery	8
4	Ability in fitting contact lenses in different occupations and Practice Management Fitting considerations for sports and special situations. Contact lens in different occupation. Advancements in contact lens industry, contact lens instrumentation and techniques, Products oriented design and material characteristics, setting up your practice - Law and Practice Management.	8

**SPECIALIZED CLINICAL OPTOMETRY-
BINOCULAR VISION**

CL	CP	L	P
2	0	30	0

INSTRUCTOR IN CHARGE: A post-graduate or an optometrist with adequate clinical exposure in handling binocular vision clinic.


COURSE DESCRIPTION: This course is designed to provide the learners an exposure to advanced issues in managing binocular vision anomalies using vision therapy. The learners will be introduced to diagnosis and treatment of sensory-motor disorders of binocular vision, including strabismus, amblyopia, and general binocular dysfunction, special conditions like Accommodative Spasm/ Pseudomyopia, learning related vision problems, sensory-motor issues related to acquired brain injury, their optometric evaluation and Optometrist's role in these issues.

OBJECTIVES: Upon completion of this course, students will be able to

1. Define the concept related to basics of binocular vision, and interactions between accommodation and Vergence through clinical testing
2. Relate the development of the eye and visual system, and its implications to binocular vision anomalies; Perform a comprehensive Binocular vision assessment and arrive at appropriate diagnosis
3. Define and analyze various types of strabismus, clinical characteristics, effects of visual deprivation, amblyopia, oculomotor control and disruptions, nystagmus and perform appropriate clinical testing for the same
4. Explain the relationship between vision and learning and relate it to visual perceptual assessment, and acquired brain injury
5. Formulate a hierarchical vision therapy protocol for non-strabismic binocular vision dysfunctions and amblyopia

TEXT BOOK:

1. M. Scheiman, B. Wick, Optometric Management of Learning Related Vision Problems, 2/e., Mosby Inc, 2006.
2. L. J. Press, Applied Concepts in Vision Therapy, St. Louis: Mosby. 2008.
3. M. Scheiman, B. Wick, Clinical Management of Binocular Vision – Heterophoric, Accommodative, and eye movement disorders, 4/e., Lippincott Williams & Wilkins 2014.
4. S. Cotter, Clinical Uses of Prism: A Spectrum of Applications, 1/e., Mosby. 1995.
5. E. Ong, K. J. Ciuffreda, Accommodation, Nearwork, and Myopia. Optometric Extension Program. 1997.
6. G. B. Erickson, Sports Vision: Vision Care for the Enhancement of Sports Performance Butterworth-Heinemann, 2007.

ONLINE RESOURCES

1. Clinical Practice Guidelines of AOA on Care of the patient with Accommodative and Vergence dysfunction (CPG – 18)

<https://www.aoa.org/documents/optometrists/QRG-18.pdf>

2. Care of the patient with amblyopia (CPG – 4)

<https://www.aoa.org/documents/optometrists/QRG-4.pdf>

3. Care of the patient with strabismus (CPG – 12)

<https://www.aoa.org/documents/optometrists/QRG-12.pdf>

4. Care of the patient with paediatric eye and vision examination (CPG 2)

<https://www.aoa.org/documents/optometrists/CPG-2.pdf>

JOURNALS

1. Optometry (Journal of the American Optometric Association)

2. Journal of Behavioural Optometry

3. Journal of Learning Disabilities

4. Optometry and Vision Development (COVD Journal)

5. Optometry and Vision Science

6. Behavioural Optometry (Australia)



PREREQUISITES: Ocular Diseases, Basic Binocular Vision

COURSE PLAN:

Unit	Topics	Hours
1	<p>Introduction</p> <ol style="list-style-type: none">1. Basics concepts related to binocular vision – brief refreshment2. Normal development of visual system3. Interaction between accommodation and vergence4. Understanding binocular vision anomalies5. Clinical assessments involved in identifying binocular vision anomalies	8
2	<p>Strabismus, Esodeviations, Exodeviations, Vertical deviations, types and clinical characteristics, accommodative and non-accommodative etiologies, oculomotor signs of disorders of the central nervous system, Assessment of optical and visual function in human infants. Refraction and refractive error in infants and children, Effects of visual deprivation. Amblyopia, types and clinical features of Nystagmus.</p>	8
3	<p>Concepts of Binocular Vision and neural systems: Relationship between vision and learning, visual processing development, Visual information processing and visual perceptual disorders. Parallel pathways for vision, dorsal, ventral streams, mirror neuron system, cerebral vision impairment, acquired brain injury, learning related vision problems, tests for visual perception, Test of Developmental Eye Movements, Test of Visual Perceptual Skills, Beery-Buktenica Visual Motor Integration, Wold Sentence Copy, Piaget Left-Right, Gardner Reversal Frequency, Birch-Belmont Auditory-Visual Integration, binocular vision assessment in sports vision.</p>	6
4	<p>Introduction to vision therapy concepts</p> <ol style="list-style-type: none">1. Vision therapy equipment2. Formulating a Vision Therapy Protocol – Hierarchical sequencing3. Vision therapy: In-office and Home4. Accommodation,5. Vergence	8

6. Oculomotor dysfunctions
7. Amblyopia
8. Recent advancements in vision therapy
9. Use of Optical aids in Vision Therapy
10. Lenses, prisms, and mirrors,
11. Free space and instrument training,
12. Paper and pencil techniques

SPECIALIZED CLINICAL OPTOMETRY-REHABILITATION

CL	CP	L	P
2	0	30	0

INSTRUCTOR IN CHARGE: A post-graduate or an optometrist with adequate clinical exposure in handling rehabilitation services.

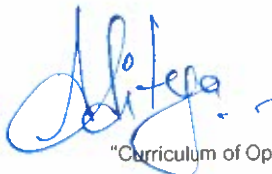
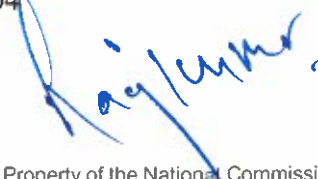
COURSE DESCRIPTION: This course aims to provide the learners both in-depth theoretical knowledge and clinical exposure in rehabilitation. The course enables the learner to understand the nature of the rehabilitation, its functional and psychosocial consequences of rehabilitation measures.

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

1. Define different approaches to rehabilitation and can able to recite the available laws in relation to rehabilitation
2. Assess the psychology of the patients and understand the social and psychological limitations in relation with the rehabilitation approach
3. Outline various available rehabilitation methods and resources for children
4. Outline various available rehabilitation methods and resources for adults and elderly

TEXTBOOK AND REFERENCE BOOKS:

1. Silverstone, Lighthouse Handbook on Vision Impairment and Vision Rehabilitation – Volume I and II. Oxford University press, 2000.
2. Dickinson. Low Vision – Principles and Practice, Butterworth Heinemann, 2002.
3. M. V. S. Sailaja, G. Sarika, E. Vaithilingam, Practice of Low Vision Care Guide for Eye Care Professionals, 2/e., Sankara Nethralaya, 2015.
4. R. T. Jose, Understanding Low Vision, American Foundation for the Blind, 1994.
5. A. H. Lueck, Functional Vision: A Practitioner’s Guide to Evaluation and Intervention, AFB Press, 2004


PREREQUISITES: Ocular diseases and Low vision care

COURSE PLAN:

Unit	Topics	Hours
1	<p>Introduction and Legal aspects in Rehabilitation</p> <ol style="list-style-type: none">1. Introduction to Rehabilitation: In western, in Asia and Personnel preparation for rehabilitations2. Concept of Rehabilitation3. Availability and Limitations in current medical treatments and the need for visual rehabilitation with respect to Indian Scenario,4. Legal aspects of rehabilitation: Right to Persons with Disabilities act (2016), other related legal aspects and amendments towards betterment of visual challenged	5
2	<p>Psychological and social factors in visual Adaptation and Rehabilitation</p> <ol style="list-style-type: none">1. The Role of psychosocial Factors in adaptation to vision Impairment and rehabilitation outcomes for Children and Youth2. The Role of psychosocial Factors in adaptation to vision Impairment and rehabilitation outcomes for Adults and Older adults3. Social support and adjustment to vision Impairment across the life span4. The person – Environment perspective of vision impairment5. Associated Depression, Disability and rehabilitation6. Methodological strategies and issues in social research on vision Impairment and rehabilitation	5
3	<p>Rehabilitation for children</p> <p>Functional Vision evaluation of Infants, Educational assessment of visual function in Children, Classroom environment and academic activities, Support as an Optometrist, Early intervention in infants with low vision / Vision stimulation, Different types of schooling, Mainstreaming the child with visual impairment, Integrated/Inclusive modes of education, Holistic approach in visual Rehabilitation, Environmental modification at home and office, Performing basic activities of daily living, Available vocations / Vocational training / Independent living skills, Disability concessions for the visually impaired / Social security</p>	10

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4	<p>Rehabilitation for adults:</p> <p>Holistic approach in visual Rehabilitation, Environmental modification at home and office, Performing basic activities of daily living, Available vocations / Vocational training / Independent living skills, Disability concessions for the visually impaired / Social security, Job placement according to the educational qualification, Orientation and Mobility training, Independent living skills including cooking, cleaning, sweeping, ADL</p> <p>Rehabilitation of older Adults with Vision Impairment:</p> <p>Environmental modification at home, Performing basic activities of daily living, Disability concessions for the visually impaired, social and financial security</p>	10
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ELECTIVE II

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

CL	CP	L	P
2	0	30	0

1. Advanced Ocular Disease (Retina, Glaucoma, Cornea)
2. Teaching Assitance-1
3. Occupational Optometry
4. Orientation and Mobility
5. Data science
6. Ophthalmic Genetics and Genetic Counselling
7. Course 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.

SCIENTIFIC COMMUNICATION

INSTRUCTOR IN CHARGE: A postgraduate or doctorate in the field of communication

CL	CP	L	P
2	0	30	0

COURSE DESCRIPTION: This course gives a comprehensive introduction to the learners that will help them create effective scientific communication along with preparation of technical documents.



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

1. Relate to the purpose and infer about an audience, and show ethical issues of technical communication, Outline key aspects, build on conducting interviews and surveys
2. Plan and compose a technical proposal, approach to review board and ethics committee
3. Identify important aspects of visual technical communication and utilize it
4. Determine significant aspects of oral technical communication and plan for giving effective oral presentations
5. Identifying and effectively choosing the mode of communication to communicating with peers

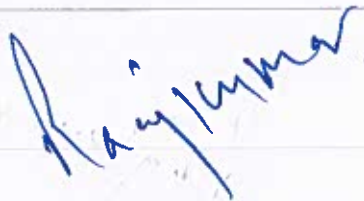
TEXTBOOK AND REFERENCE BOOK:

H. Graves, R. Graves, A Strategic Guide to Technical Communication, 2/e, Broad view press, 2012.

PREREQUISITES: Basic Communication skills

COURSE PLAN:

Unit	Topics	Hours
1	Audience, purpose and Genre – technical communication, linking purpose and audience, Ethical issues of technical communication – Ethical writing and its relation to technical communication, Interviewing and conducting surveys – Preparation and reporting the outcomes, Visual technical communication - Visuals for effective communication, guidelines for preparing and giving presentations	10
2	Proposal Writing: Research Proposals, Grant Proposals, Approvals from Review Boards and Ethics Committee, Dissertation writing and Manuscript writing: Consolidating the literature, addressing reviewer comments	10
3	Oral technical communication - Common speaking occasions, formal and informal presentations, guidelines for preparing and giving presentations, Communicating to peers: Defense/ VIVA voce, Letter to editors, view point articles, guest editorials, Media and social network - Communicating scientific content to the public	10



RESEARCH PROJECT - III

INSTRUCTOR IN CHARGE: M Optom with experience in handling

CL	CP	L	P
4	0	60	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 collect data, clean, code and analyse data, write a dissertation report till results and discussion. Student should attend periodic journal clubs, interact with peers, faculty and guide and plan for publication of the work in discussion with the respective guides.

OBJECTIVE:

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

1. Collect data and analyse
2. Present the results in relevant formats like tables and figures
3. Write the dissertation report
4. Plan for a manuscript writing

GENERAL CLINICS III

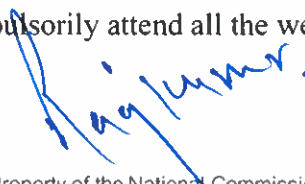
COURSE OBJECTIVE: This course aims to expose the learner to different specialty out-patient departments and general clinics to provide comprehensive optometric care.

CL	CP	L	P
0	6	0	180

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 - III

CL	CP	L	P
0	6	0	180

COURSE OBJECTIVE: This course aims to expose the learner to different optometry specialty clinics and diagnostic specialties to equip the learner to 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:

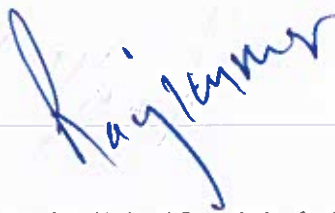
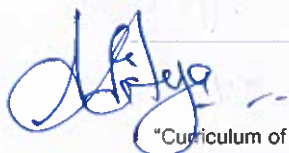
1. Glaucoma Diagnostics (UBM, ASOCT, Visual Fields, OCT)
2. Retina Diagnostics (OCT, FFA, B Scan, Electro diagnostics)
3. Cornea Diagnostics (ASOCT, Pentacam, Topography, Abberometer)

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-III

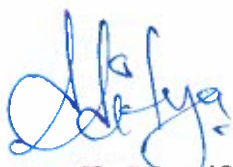
CL	CP	L	P
0	2	0	60

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.)



Fourth Semester

**SPECIALISED CLINICAL OPTOMETRY –
VISION THERAPY, NEURO-OPTOMETRY**

CL	CP	L	P
2	0	30	0

INSTRUCTOR IN CHARGE: A postgraduate or PhD in Optometry and vision science with relevant exposure to general and various specialty clinics particularly binocular vision, paediatric optometry and vision therapy.

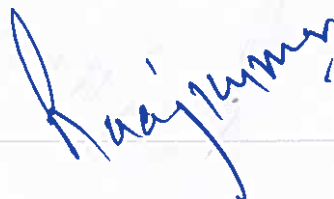
COURSE DESCRIPTION This course is designed to provide the learners an exposure to advanced issues in binocular vision and its management. The learners will be introduced to diagnosis and treatment of sensory-motor disorders of binocular vision. The course will also provide advanced training to the learners in Neuro-Optometry and Neuro-Optometric vision therapy, evaluating patients with Traumatic brain injury and Cerebrovascular Accidents such as Stroke, and cranial nerve paresis. The course will help to understand the specialized evaluation protocols and Neuro-optometric rehabilitation.

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

1. To formulate a hierarchical vision therapy protocol for non-strabismic binocular vision dysfunctions, amblyopia
2. To apply the knowledge of Neuro-anatomical pathways for the control of eye position and movement
3. To discuss the evaluation and treatment of Visual field loss and visual spatial neglect, evaluation of Visual and vestibular system in Traumatic brain injury, Egocentric localization, management for altered visual adaptation in ABI
4. To discuss the various vision rehabilitation techniques in Brain Injury.

TEXT BOOK AND REFERENCE BOOK:

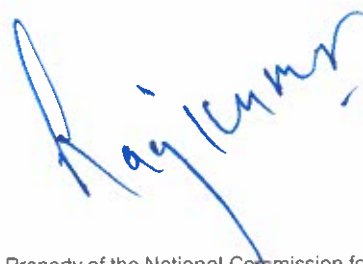
1. Clinical management of binocular vision Mitchell Scheiman and Bruce Wick
2. Applied concepts in vision therapy: Leonard Press



PREREQUISITES: Ocular Diseases, Paediatric Optometry, Binocular Vision, Low Vision

COURSE PLAN:

Unit	Topics	Hours
1	Vision therapy equipment, formulating a Vision Therapy Protocol – Hierarchical sequencing, vision therapy for accommodation, vergence and oculomotor dysfunctions, lenses, prisms, and mirrors, free space and instrument training, paper and pencil techniques, vision therapy for amblyopia, recent advancements in Vision Therapy	15
2	Anatomy of the visual cortex, pathway for vision, pupils, and eye movements, Structure and function of the early visual pathway including retinal ganglion cells, optic nerves, lateral geniculate nucleus and visual cortex. Taking history and understanding neuro-ophthalmic emergencies, visual loss of uncertain origin, Neuro-optometric assessment	6
3	Neuro-anatomical pathways for the control of eye position and movement; gaze holding, image stabilization and tracking eye movement systems; oculomotor signs of disorders of the central nervous system (palsies, nystagmus, ophthalmoplegia, cog-wheel pursuits, saccadic dysmetria); the near visual-motor response and the synergistic coupling of accommodation and convergence; binocular misalignment (heterophoria and fixation disparity, Visual and vestibular system in Traumatic brain injury (TBI), diplopia assessment, Hess, Diplopia charting, assessment of reading, Readalyzer, Vision rehabilitation in brain injury, training in compensatory scanning, Prisms and its applications. Interdisciplinary management and rehabilitation	9



ELECTIVE III

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

CL	CP	L	P
2	0	30	0

1. Innovations in Ocular diagnostics
2. Teaching Assistance-2
3. Sports Optometry
4. Quality of life assessment and patient reported outcomes.
5. Non-optical refractive management
6. Health economics

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 - IV

INSTRUCTOR IN CHARGE: M Optom with experience in handling

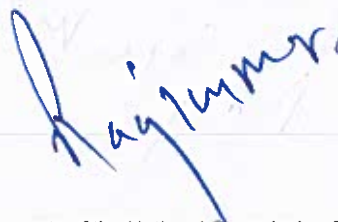
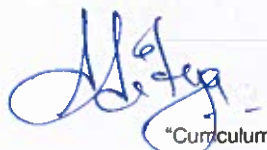
CL	CP	L	P
6	0	90	0

COURSE DESCRIPTION: This course enables the learner to critically review, propose, plan, implement and judge an appropriate research idea into reality, discuss on the results and conclude decisions based on the work. During the course, the learner will complete data collection, analyse the data and conclude, understand the scope and limitations of the work and present a complete report. Learner will also have periodic discussions with the guide and incorporate the discussion agenda into the research work.

OBJECTIVE:

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

1. To use appropriate strategy to clean and code the collected data
2. To use suitable statistical methods to present results
3. To complete research from the initial steps of problem identification to the final outcome
4. To submit a dissertation on their relevant research interest area
5. To defend the work to vision scientists, clinicians and public
6. To submit a manuscript in indexed journal.



GENERAL CLINICS IV

CL	CP	L	P
0	8	0	240

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.

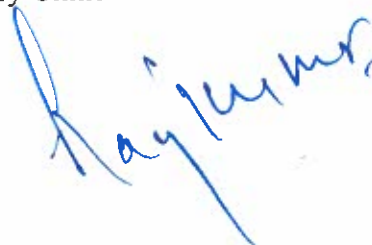
SPECIALTY OPTOMETRY CLINICS - IV

CL	CP	L	P
0	8	0	240

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-IV

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.)



Target cases for Semester -II

Speciality Clinics	No. of cases
Contact lens	
Rigid Contact lens fitting in simple refractive errors	5
Soft contact lens fitting in Simple Refractive errors	5
Bifocal fitting	3
Abnormal cornea	3
Cosmetic contact lens	5
Bandage lens fitting	2
prosthetic shell (Custom made)	2
Low Vision	
Low vision clinic	12
Low vision screening camp	1 camp
Integrated/Inclusive/Special school posting for a week period.	10
Case report – submission and presentations	
BV I	
Pediatric patient evaluation	12
Diagnosis and management of oculomotor problems	10
Amblyopia management	5
Management of special population	10
Community Optometry clinics	
Community eye care Hospitals/vision centers	10
Planning and conducting of Vision and Eye Screening	1 camp
Screening report writing	
Advanced Ocular Diagnostics	
Anterior segment Photography	10
Posterior segment Photography	10

PG Log book:

The students are required to carry out the following cases on the patients, rather than merely observing them, and document their experiences in the log book. The specific number of cases to be recorded in the log book for each semester is provided below.

Target cases for Semester -III

Speciality Clinics	No. of cases
Contact Lens Clinics	
Scleral contact lens fitting	6
Orthokeratology	2
Post-refractive surgery	2
Post-keratoplasty fitting	4
Abnormal cornea	2
Cosmetic contact lens	Already done in previous sem. But while submitting at university students need to submit previous year cases
Bandage lens fitting	
Rigid Contact lens fitting in Simple refractive errors	
Soft contact lens fitting in Simple Refractive errors	
Bifocal fitting	
Community Optometry Clinics	
Community eye care Hospitals	10
Planning and conducting of Vision and Eye Screening	Planning of one Eye camp by each student.
Screening report writing.	Concerned student who has arranged the camp needs to submit the report
Low Vision Clinics	
Low vision clinic	12
Case report – submitting and presentations	

Aditya

Raj Kumar

Aroshma
9/11 Page

Paediatric Clinics	
Paediatric patient evaluation	Refractive error subjects: 5 patients Anterior segment cases: 2 patients Posterior segment cases: 2 patients Lids and Adnexa (No. simple ptosis or NLD blocks): 2 patients
Diagnosis and management of oculomotor problems	Horizontal squints: 5 patients Vertical /oblique squints: 3 patients Sensory anomalies: 3 patients
Vision therapy	10
Amblyopia management	3
Management of special population	Already done in previous sem. But while submitting at university students need to submit previous year cases
Perceptual therapies	2
Neuro optometric rehabilitation	1
Advanced Ocular Diagnostics	
a. Topography/Pentacam/Orbscan	10
b. Specular microscopy	10
c. Pachymetry	10
d. Abberometry	10
e. AS OCT	10
f. UBM	10
g. Corneal Hysteresis	10
h. Pre- refractive procedures Work up.	10





Target cases for Semester -IV

Speciality Clinics	No. of cases
Contact Lens Clinics	
Scleral contact lens fitting	3 eyes
Orthokeratology	2 eyes
Post-refractive surgery	2 eyes
Post-keratoplasty fitting	2 eyes
Community Optometry Clinics	
Community eye care Hospitals	10
Low Vision Clinics	
Low vision clinic	10
Case report – submitting and presentations	
Paediatric Clinics	
Diagnosis and management of oculomotor problems	Horizontal squints: 5 Vertical /oblique squints: 3 Sensory anomalies: 3
Vision therapy	10
Management of special population	
Perceptual therapies	2
Neuro optometric rehabilitation	1
Advanced Ocular Diagnostics	
Glaucoma Work-ups : VFA, OCT, Pachymetry, AT	10 each
Dry eye Work ups: TBUT, OSDI, Meibography, Schirmer test	10 each
Electro diagnostics	3 cases each: 10 cases over all ERG, EOG, VEP, PVEP, MFERG etc.

Shilpa

Raj Kumar

Amish

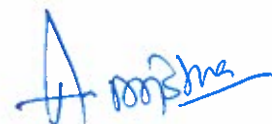
Credits and Assessment Outline

First Semester

Course code	Course Titles	Credits/Week			Hours/Semester			Assessments		Total
		L	P	C	L	T/P	Total	IA*	UE**	(IA+UE)
MOP101	Applied ocular biology	3		3	45		45	30	70	100
MOP102	Advanced Ocular Diagnostics & Management	3		3	45		45	30	70	100
MOP103	Research Methodology and Biostatistics	2		2	30		30	30	70	100
MOP104	Intellectual property rights [#]	2		2	30		30	100	-	100
MOP105	Research Project-1 [#]	3		3	45		45	50	-	50
MOP106	Digital pedagogy and learning management [#]	1	0.5	1.5	15	15	30	100	-	100
MOP107	General Clinics-1		4	4		120	120	30	70	100
MOP108	Specialty Optometry Clinics-1		4	4		120	120	30	70	100
MOP109	Community Outreach-1		2	2		60	60	30	70	100
Total		14	10.5	24.5	210	315	525	430	420	850

#Non-University Exams





Second Semester

Course code	Course Titles	Credits/Week			Hours/Semester			Assessments		Total (IA+UE)
		L	P	C	L	T/P	Total	IA*	UE**	
MOP201	Specialized clinical optometry-CL-1	2		2	30		30	30	70	100
MOP202	Specialized clinical optometry-LVC	2		2	30		30	30	70	100
MOP203	Elective 1#	2		2	30		30	100	-	100
MOP204	Research Project-2 #	4		4	60		60	50	-	100
MOP205	General Clinics-2		6	6		180	180	30	70	100
MOP206	Specialty Optometry Clinics-2		4	4		120	120	30	70	100
MOP207	Community Outreach-2		2	2		60	60	30	70	100
Total		10	12	22	150	360	510	300	350	650

#Non-University Exams

स्वास्थ्यम् सर्वार्थसाधनम्

NCAHP

Since-2021

आयुर्विज्ञान और स्वास्थ्य सेवा वल्लि आध्यात्मिक

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Third Semester

Course code	Course Titles	Credits/Week			Hours/Semester			Assessments		Total
		L	P	C	L	T/P	Total	IA*	UE**	(IA+UE)
MOP301	Specialized clinical optometry- CL-2	2		2	30		30	30	70	100
MOP302	Specialized clinical optometry- BV	2		2	30		30	30	70	100
MOP303	Specialized clinical optometry- Rehabilitation	2		2	30		30	30	70	100
MOP304	Elective 2 #	2		2	30		30	100	-	100
MOP305	Scientific communication #	2		2	30		30	100	-	100
MOP306	Research Project-3	4		4	60		60	30	70	100
MOP307	General Clinics-3		6	6		180	180	30	70	100
MOP308	Specialty Optometry Clinics-3		6	6		180	180	30	70	100
MOP309	Community Outreach-3		2	2		60	60	30	70	100
Total		14	14	28	210	420	630	410	490	900

#Non-University Exams

Alteya

Raymond

A. Anshu

Fourth Semester

Course code	Course Titles	Credits/Week			Hours/Semester			Assessments		Total
		L	P	C	L	T/P	Total	IA*	UE**	(IA+UE)
MOP401	Specialized clinical optometry- Vision Therapy, Neuro optometry	2		2	30		30	30	70	100
MOP402	Elective 3 #			2	30		30	100	-	100
MOP403	Research Project-4	6		6	90		90	30	70	100
MOP404	General Clinics-4		8	8		240	240	30	70	100
MOP405	Specialty Optometry Clinics-4		8	8		240	240	30	70	100
MOP406	Community Outreach-4		2	2		60	60	30	70	100
Total		10	18	28	150	540	690	250	350	600

#Non-University Exams

PS:

- Distribution of marks for Internal and External assessments will be based on the credit distribution of the theory and practical for the courses. For eg. If a course has 3 credits for Lecture and 0.5 credits for Practicals, 25 marks for theory and 5 marks for practical will be considered for internal assessments out of the 30 marks. Similar ratios will be followed for External assessments.
- For Practical examinations, an internal and external examiner will assess the candidates. All examinations will align with the IMLOCS document
- Research Project: An internal and external examiner will assess the candidates for the final evaluation. Optometrists with PhD (Preferably in the relevant disciplines of optometry) should be the examiner for assessment of research projects

Abhishek

Raj Kumar

Arvind

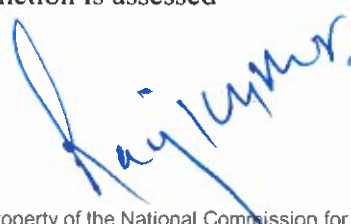
Skills based outcomes and monitorable indicators for Optometrist

1. PATIENT HISTORY

- a. Communicates with the patient
 - i. Modes and methods of communication are employed which take into account the physical, emotional, intellectual and cultural background of the patient
 - ii. A structured, efficient, rational and comfortable exchange of information between the optometrist and the patient takes place
- b. Makes general observations of patient
- c. Obtains the case history
- d. Obtains and interprets patient information from other professionals

2. PATIENT EXAMINATION

- a. Formulates
 - i. An examination plan based on the patient history is designed to obtain the information necessary for diagnosis and management
 - ii. Tests and procedures appropriate to the patient's condition and abilities are selected.
- b. Implements examination plan
 - i. Tests and procedures which will efficiently provide the information required for diagnosis are performed
 - ii. The examination plan and procedures are progressively modified on the basis of findings
- c. Assesses the ocular adnexae and the eye
 - i. The structure and health of the ocular adnexae and their ability to function are assessed
 - ii. The structure and health of the anterior segment and its ability to function are assessed
 - iii. The structure and health of the ocular media and their ability to function are assessed
 - iv. The structure and health of the posterior segment and its ability to function are assessed.
 - v. The nature of the disease state is determined
 - vi. Microbiological tests are selected and ordered
- d. Assesses central and peripheral sensory visual function and the integrity of the visual pathways
 - i. Vision and visual acuity are measured
 - ii. Visual fields are measured
 - iii. Colour vision is assessed
 - iv. Pupil function is assessed



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- e. Assesses refractive status
- f. Assesses oculomotor and binocular function
 - i. Eye alignment and the state of fixation are assessed
 - ii. The quality and range of the patient's eye movements are determined
 - iii. The status of sensory fusion is determined
 - iv. The adaptability of the vergence system is determined
 - v. Placement and adaptability of accommodation are assessed
- g. Assesses visual information processing
 - i. Visual perceptual abilities are assessed
 - ii. Visual-motor integration is assessed
- h. Assesses the significance of signs and symptoms found incidental to the ocular examination in relation to the patient's eye and/or general health
- i. Pertinent non-ocular signs and symptoms found incidentally during the ocular examination are identified and considered
- j. Ensures that significant non-ocular signs and symptoms are investigated

3. DIAGNOSIS

- a. Interprets and analyses findings to establish a diagnosis or diagnoses
- b. Accuracy and validity of test results and information from the case history and other sources are critically appraised
- c. Test results and other information are analysed, interpreted and integrated to establish the diagnosis or diagnoses

4. PATIENT MANAGEMENT

- a. Designs a management plan for each patient and implements the plan agreed to with the patient
- b. The diagnosis is presented and explained to the patient
- c. Consideration is given to the relative importance or urgency of the presenting problems and examination findings
- d. Management options to address the patient's needs are explained
- e. A course of management is chosen with the patient, following counselling and explanation of the likely course of the condition, case management and prognosis
- f. The informed consent of the patient is obtained for the initiation and continuation of treatment
- g. Patients requiring ongoing care and review are recalled as their clinical condition indicates, and management is modified as indicated



5. PRESCRIBES SPECTACLES

- a. The suitability of spectacles as a form of correction for the patient is assessed
- b. The patient's refraction, visual requirements and other findings are applied to determine the spectacle prescription

6. PRESCRIBES CONTACT LENSES

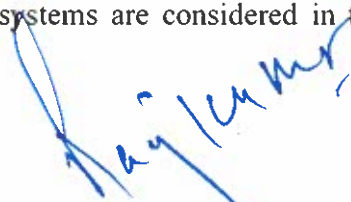
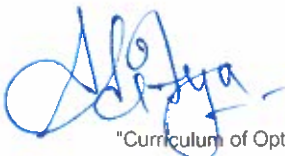
- a. The suitability of contact lenses as a form of correction for the patient is assessed
- b. The patient's refraction, visual requirements and other findings are applied to determine the contact lens prescription
- c. Therapeutic and cosmetic contact lenses are recommended and prescribed
- d. Contact lenses are correctly ordered and on receipt, parameters are verified before the lenses are supplied to the patient
- e. Contact lenses are checked on the eye for physical fitting and visual performance
- f. The patient is instructed in matters relating to ocular health and vision in contact lens wear, contact lens care and maintenance
- g. Contact lens performance, ocular health and patient adherence to wearing and maintenance regimen is monitored

7. PRESCRIBES LOW VISION DEVICES

- a. A range of low vision devices is demonstrated
- b. Low vision devices suited to the patient's visual requirements and functional needs are prescribed
- c. The patient is instructed in the use of the low vision device
- d. The success of the low vision device is evaluated and monitored and additional or alternative devices are prescribed
- e. The patient is informed of and, if necessary, referred to other rehabilitative services

8. PRESCRIBES PHARMACOLOGICAL TREATMENT REGIMENS

- a. Selects appropriate pharmacological agents for the treatment of the patient's condition
- b. Microbiological factors are considered in the choice of therapeutic agent(s)
- c. Pharmacological factors are considered in the choice of therapeutic agent(s)
- d. Systemic factors are considered in the choice of therapeutic agent(s)
- e. Ocular factors are considered in the choice of therapeutic agent(s)
- f. Available delivery systems are considered in the choice of therapeutic agent(s)



- g. Drug substitution factors are considered in the choice of therapeutic agent(s)
- h. Prescribes therapeutic drugs
- i. Monitors and modifies treatment regimen
- j. Instructs/counsels patient on the correct use of the prescribed drugs
- k. Patients are instructed about precautionary procedures and non-therapeutic management

9. DISPENSES OPTICAL PRESCRIPTIONS ACCURATELY

- a. The prescription is interpreted and responsibility for dispensing is accepted
- b. The patient is assisted in selecting an appliance
- c. Lenses are ordered and fitted to spectacle frames in accordance with accepted standards
- d. The appliance is verified against the prescription prior to delivery
- e. The appliance is adjusted and delivered and the patient is instructed in the proper use and maintenance of the appliance and of any adaptation effects which may be expected

10. MANAGES PATIENTS REQUIRING VISION THERAPY

- a. Treats patients diagnosed with accommodative, vergence, strabismic and amblyopic conditions
- b. The patient is instructed in the use and maintenance of vision training equipment
- c. Goals of the vision therapy program and criteria for discharge are set
- d. Progress of the vision therapy program is monitored

11. TREATS OCULAR DISEASE AND INJURY

- a. Non-pharmacological treatment or intervention procedures are performed
- b. Pharmacological and/or other regimens are instituted and therapeutic devices are introduced to treat eye conditions
- c. The patient is instructed in the use, administration, storage and disposal of pharmaceutical agents
- d. The effect of treatment is monitored and changes in management are recommended

12. REFERS THE PATIENT

- a. The need for referral to other professionals for assessment and/or treatment is recognised and discussed with the patient.
- b. A suitable professional is recommended to the patient
- c. Timely referral, with supporting documentation, is made to other professionals
- d. Patients can be jointly managed with other health care practitioners

13. CO-WORK WITH OPHTHALMOLOGIST IN THE PROVISION OF PRE AND POST OPERATIVE MANAGEMENT OF PATIENTS

- a. Provides pre-operative assessment and advice
- b. Provides post-surgical follow-up assessment and monitoring of signs according to the surgeon's requirements and the procedure undertaken
- c. Provides emergency management for observed post-surgical complication
- d. Arranges appropriate referral for further post-operative treatment or assessment of complications

14. PROVIDES ADVICE ON VISION IN THE WORKPLACE

- a. Visual screenings for occupational or other purposes are provided
- b. Advice is provided on eye protection, visual standards and visual ergonomics in the workplace
- c. Individuals are counselled on the suitability of their vision for certain occupations
- d. Certification of an individual's visual suitability for designated occupations or tasks is provided

15. RECORDING OF CLINICAL DATA

- a. Ensures that data is organised in a legible, secure, accessible, permanent and unambiguous manner
- b. All relevant information pertaining to the patient is recorded in a format which is understandable and useable by the optometrist and his/her colleagues
- c. Patient records are kept in a readily retrievable format and are physically secure
- d. Maintains confidentiality of patient records
- e. Understands the need to ensure that access to records is limited to authorised personnel
- f. Information from patient records and/or obtained from patients is released only with the consent of the patient



Chapter 5

Competency Standards for Entry Level into the Profession of Optometry in India

Chapter 5: Indian Entry Level Optometry Competency Skill Standard (IELOCS)

These standards have been developed for the profession, as it exists in 2011 and are expected to be altered as technology and knowledge expand, optometrists' clinical skills and community expectations broaden and professional aspirations are fulfilled

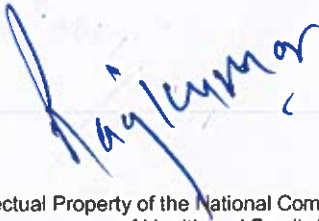
What is a competency?

„Competency is the **Ability** to perform the activities within an occupation or function to the standard expected in employment“.

OR

Competency has been defined as the **Ability** to perform the responsibilities required of professionals to the standards necessary for safe and effective practice.

A competency will be a combination of the specification and application of a knowledge or skill within the occupation, to the appropriate standard. It will include the requirement to perform individual tasks; to manage a number of different tasks, to respond to irregularities and breakdowns in routine and to deal with the responsibilities and expectations of the work environment. Thus, it will be a combination of task skills, task management skills, contingency management skills and job/role environment skills.



Competency-based standards are seen to encompass all forms of achievement of competence rather than only formal indicators such as formal qualifications from educational institutions and could have a role in the process of articulation or linkage between professions and related trades or occupations.

What is the goal of developing Entry Level Optometry Competency Skill document?

The goal of the IELOCS is to enable the schools of optometry in India to design their curriculum based on this document so that the optometry students passing out from their institute achieve the expected competency skills in/for the profession of optometry.

Terminology:

Some terms used in this document have specific meanings within the context of competency standards.

Unit: A major segment of the overall competency of the profession, typically representing a major function or role of the profession.

Performance criteria: Evaluative statements which specify the required level of performance.

Indicators: Measurable and observable features, which can assist in determining whether a competency is achieved.

Classification Units of Competency Skills at Entry level for Optometrists

- A) Communication Skills
- B) Professional Conduct
- C) Patient Examination and Management
- D) Optical Dispensing
- E) Documentation



Communication Skills	<p>Ability to communicate effectively with the patient, taking into accounts his/her physical, emotional, intellectual, social and cultural background.</p> <p>Ability to build rapport and empathy with patients from all backgrounds</p> <p>Ability to take a structured, efficient, accurate history from patients with or without any ophthalmic and / or systemic problems and needs.</p> <p>Ability to impart information in a manner which is appropriate to the recipient Ability to be flexible in routine so as to make assimilation of information easy especially with illiterates, people with special needs</p>
Professional Conduct	<p>Ability to protect patient data and records for confidentiality.</p> <p>Ability to manage patients in a safe, appropriate and confidential environment.</p> <p>Ability to comply with legal, professional, and ethical issues relating to practice.</p>
Patient Examination and management	<p>Ability to measure vision and visual acuity</p> <p>Ability to detect and measure the spherical, astigmatic and presbyopic corrections</p> <p>Ability to prescribe refractive correction for different age groups and visual needs.</p> <p>Ability to examine and identify abnormalities of the external eye and adnexa using appropriate instruments and techniques</p> <p>Ability to differentiate and grade normal and abnormal findings</p> <p>Ability to examine and identify abnormalities of the cornea using appropriate instruments and techniques</p> <p>Ability to use contact and non-contact tonometers to measure intraocular pressure and analyse and interpret the results</p> <p>Ability to examine and identify abnormalities in the anterior chamber</p> <p>Ability to examine and identify abnormalities in the iris and assess pupil reflexes Ability to examine and identify abnormalities in the crystalline lens using appropriate instruments and techniques</p> <p>Ability to examine and identify abnormalities in the vitreous and fundi using appropriate instruments and techniques</p> <p>Ability to diagnose and manage the case within the purview of the optometry care.</p>

	<p>Ability to select appropriate, and use safely, the range of ophthalmic drugs and diagnostic stains available to an optometrist</p> <p>Ability to formulate the follow up routines</p> <p>Ability to refer where appropriate for further management</p> <p>Ability to interpret all investigation reports.</p>
Contact Lenses	<p>Ability to take relevant history including previous contact lens wear</p> <p>Ability to prescribe Contact lenses appropriate for different age groups and visualneeds</p> <p>Ability to assess anterior eye health as a part of pre-fitting evaluation</p> <p>Ability to quantify corneal shape and size, and pupil</p> <p>Ability to select the optimum lens</p> <p>Ability to assess and optimize lens fit</p> <p>Ability to teach a patient to safely insert, remove and care for contact lenses</p> <p>Ability to monitor the anterior eye health of contact lens wearers and refer whereappropriate</p>
Binocular Vision	<p>Ability to assess eye alignment and eye movements</p> <p>Ability to assess sensory fusion and stereopsis.</p> <p>Ability to assess oculomotor function.</p> <p>Ability to assess convergence and accommodation</p> <p>Ability to prescribe orthoptic exercises appropriate for different age groups and visualneeds.</p> <p>Ability to refer where appropriate for further management</p> <p>Ability to formulate the follow up routines</p>
Visual Impairment (Low Vision)	<p>Ability to take an appropriate history of a visually impaired patient</p> <p>Ability to accurately quantify visual impairment and relate it to the underlying pathology andfunctional consequences</p> <p>Ability to advise on the use of optical and non-optical aids</p> <p>Ability to prescribe Low Vision devices appropriate for different age groups and visualneeds.</p> <p>Ability to refer where appropriate for further management</p> <p>Ability to formulate the follow up routines.</p>

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Ray Kumar

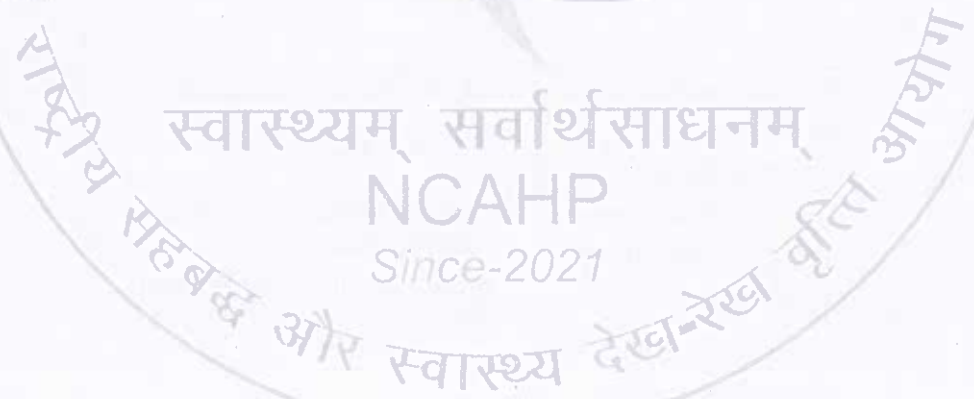
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Optical Dispensing	<p>Ability to interpret spectacle prescriptions</p> <p>Ability to take frame and facial measurements</p> <p>Ability to recommend the appropriate lens and frame material and design based on wearers needs and prescription</p> <p>Ability to verify, modify and adjust spectacles</p> <p>Ability to advice patients on appropriate use of Optical devices</p>
Documentation	<p>Ability to record relevant information, results for various examination procedures.</p> <p>Ability to record treatment, management and follow up plans</p> <p>Ability to obtain patient consent wherever required</p>

Communication Skills

Description: Ability of the optometrists to seek and communicate information from and to the patients. It also means the ability of the optometrist to share the relevant information to the eye care professionals in different contexts.

Required tools: Clinical set up with clean and quiet room, supporting materials such as awareness pamphlets/ leaflets, diagrams, visual simulations, models of the eye / clinical conditions



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Performance Criteria	Indicators		
	Knowledge	Skill	Behavior
Ability to make the patient comfortable and gather information from the patient	<ul style="list-style-type: none"> • Has basic knowledge on important details pertaining to the purpose of visit and history taken to be ascertained from the patient / attender 	<ul style="list-style-type: none"> • Greets the patient in a culturally and socially appropriate way • Ability to build and sustain rapport and trust • Demonstrates ability to listen actively to the patient, understand and summarize the information to get confirmation from the patient 	<ul style="list-style-type: none"> • Smiles and greets the patient and their attendant • Listens to patient and responds politely • Uses friendly tone of voice
Ability to identify and respond appropriately to patients' fears, anxieties and concerns about their visual welfare	<ul style="list-style-type: none"> • Understanding of verbal and non-verbal communication • Understanding of how to recognize emotions in patients and their expressions. 	<ul style="list-style-type: none"> • Establishes and maintains a good professional and clinical conduct with the patient to inspire trust and confidence • Explores patient concerns and provides reassurance where appropriate, using explanations that are relevant to that patient 	<ul style="list-style-type: none"> • Empathy • Patience
Ability to understand the patient's spoken and unspoken expectations and aspirations for vision care. Manage situations when there is a challenge to fulfil.	<ul style="list-style-type: none"> • Have understanding on the roles of optometrists and the extent to which they can deliver information to patient • Know about the protocol and ethical practice in medical care 	<ul style="list-style-type: none"> • Explores and understands patients' expectations • Appropriately guide and refer the patient to other professionals as per the need of the patient 	<ul style="list-style-type: none"> • Same as above

Abhyasa

Ray Kumar

A. Anshu

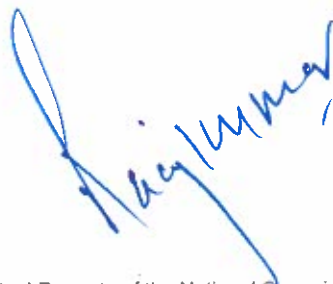
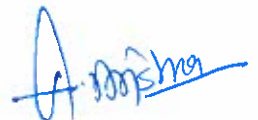
<p>Ability to communicate with patients who have language difficulties, or who are confused, reluctant / give inaccurate information</p>	<ul style="list-style-type: none"> • Knows alternative ways to examine and explain medical condition to patients and attenders • Knows necessary languages 	<ul style="list-style-type: none"> • Conveys clinical conditions in an informative and understandable way using simpler terms • Makes effective use of body language to support explanation • Uses appropriate supporting material like patient awareness documents, models etc. for explaining the clinical condition • Takes help from interpreters wherever needed 	<ul style="list-style-type: none"> • Same as above
<p>Ability to discuss with the patient the importance of systemic disease and its ocular impact, its treatment and the possible ocular side effects of medication.</p>	<ul style="list-style-type: none"> • Have thorough understanding of the disease process in cases such as diabetes, hypertension and other common systemic diseases having common ocular manifestations 	<ul style="list-style-type: none"> • Provides simple explanation to the ocular manifestations of the systemic disease in question 	<ul style="list-style-type: none"> • Same as above and creativity
<p>Ability to explain to the patient the implications of their pathological or physiological eye condition</p>	<ul style="list-style-type: none"> • Have understanding on the ocular conditions and physiology 	<ul style="list-style-type: none"> • Gives factually relevant information in a clear and understandable way, avoiding jargon and technical terms • Uses appropriate supporting material, for example, diagrams or leaflets. 	<ul style="list-style-type: none"> • Same as above and creativity

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<p>Ability to communicate effectively with any other person involved in the care of the patient</p>	<ul style="list-style-type: none"> • Based on the diagnosis have understanding on the psychological state that can be expected from the patient 	<ul style="list-style-type: none"> • Establish good rapport with the patient/attender and explains the details about the diagnosis, prognosis and management plan 	<ul style="list-style-type: none"> • Same as above
<p>Ability to explain to the patient the Examination and management plan</p>	<ul style="list-style-type: none"> • Has an understanding of the disease and steps for diagnosis based on history • Knows the appropriate management plans for the clinical condition 	<ul style="list-style-type: none"> • Summarizes the history and informs about the expected examination protocol within the role of the optometrist • Explains the management plan Clearly 	<ul style="list-style-type: none"> • Same as above

Professional Conduct

Description: The optometrist's ability to understand optometry profession's job responsibilities, its limitations, code of conduct and to comply with the legal, ethical and professional aspects of the practice. Optometrist should also be aware of rights of the patients who are seeking the optometric service for dignity, privacy and confidentiality.

This professional conduct should demonstrate to the patients and peers, your commitment to the very highest clinical, ethical and professional standards. We believe this code will increase public trust and confidence in the profession, therefore, will improve in understanding the role of the optometrist in primary eye care.

Required tools: Computer, relevant software, stationery, codes and guidelines of professional organization and regulatory bodies.

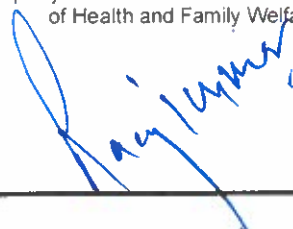
Performance Criteria	Indicators		
	Knowledge	Skill	Behavior
Ability to consider vision and general health as first priority	<ul style="list-style-type: none"> Should have in depth knowledge about various eye and general health conditions while examination Should have essential knowledge about providing an eye care to each individual who visits to your clinic Should be aware of different types of disabilities and information on patients with additional needs Should have essential knowledge about rights and dignity of the patients 	<ul style="list-style-type: none"> Recognizes and considers patient's specific needs and requirements in vision care Demonstrates best of the resources to improve the visual requirements Explains the course of present and planned treatment 	<ul style="list-style-type: none"> Greets and respects all patients and their attendants in a caring, sensitive and appropriate manner Positive attitude and patience towards patient's requirements Ensures equal care and treatment is provided to all patients

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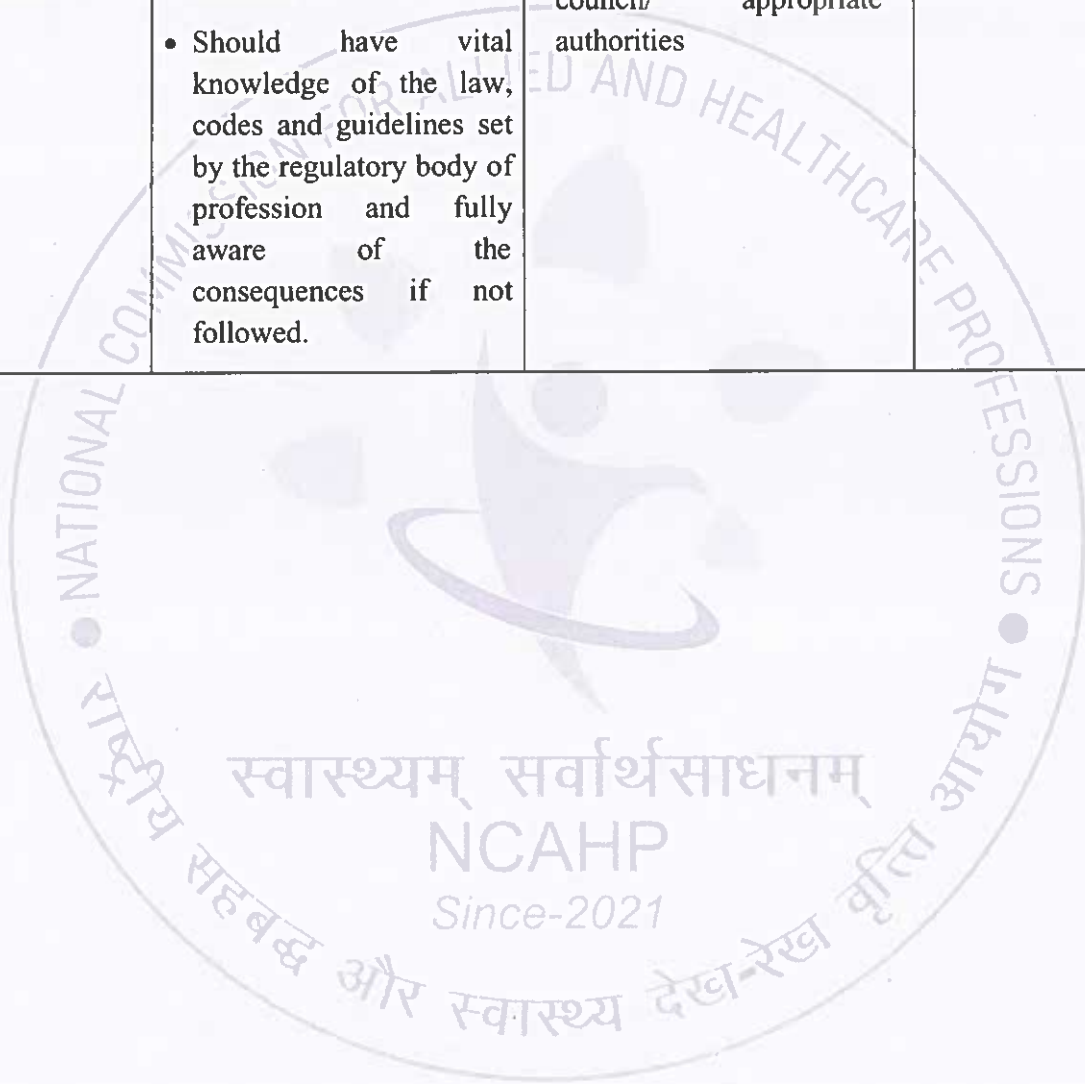
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<ul style="list-style-type: none"> • Ability to manage confidentiality of patient's demographic and medical record data 	<ul style="list-style-type: none"> • Should have adequate knowledge of data protection and how this will impact security, access and confidentiality of the patient's records • Should have essential knowledge to ensure the patient environment will remain safe and user-friendly, in terms of access and facilities 	<ul style="list-style-type: none"> • Conversant in using various digital devices, access cloud storage platforms and saves electronic medical records on system-based software programs and keeps them safe • Demonstrates how to store and retrieve manual medical records 	<ul style="list-style-type: none"> • Seeks consent of the patient before providing information to external stakeholders • Restricts self from discussing patient information and condition in any open forum/external communication
<ul style="list-style-type: none"> • Ability to adhere to health and safety policies of the practice 	<ul style="list-style-type: none"> • Should have vital knowledge about appropriate personal hygiene, cleanliness of the practice, hygiene relating to instrumentation, contact lenses, disposal of clinical waste etc. • Should be aware of policies of the local governing body and professional organizations 	<ul style="list-style-type: none"> • Implements appropriate measures for infection control • Maintains comfortable, hygienic and risk-free environment 	<ul style="list-style-type: none"> • Proactive approach to health and safety issues
<ul style="list-style-type: none"> • Ability to promote ethical and cordial relationship with other health care professionals 	<ul style="list-style-type: none"> • Should have essential knowledge of how to maintain practice in accordance with other professional health care standards 	<ul style="list-style-type: none"> • Explains the condition that are treatable/correctable beyond your practice standards • Refers to respective specialties with careful diagnosis and referral letter 	<ul style="list-style-type: none"> • Honesty and understanding of own limitations


<ul style="list-style-type: none"> • Ability to comply with legal, professional and ethical guidelines, law and codes 	<ul style="list-style-type: none"> • Should have in depth knowledge of ethical practice and standard operating procedures followed in the clinical examination and referrals • Should have vital knowledge of the law, codes and guidelines set by the regulatory body of profession and fully aware of the consequences if not followed. 	<ul style="list-style-type: none"> • Explains the uses of various diagnostic tests and their importance in the process of examination • Follows the code of conduct set down by the council/ appropriate authorities 	
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R. K. Sharma

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Patient Examination and Management

Description: Ability of the optometrist to obtain accurate history, to perform (according to internationally accepted standard procedures) clinical refraction, anterior and posterior segment evaluation, status of cranial nerves related to eye and adnexa, ability to evaluate for, select and prescribe contact lens and low vision devices, evaluate binocular vision status, arrive at the diagnosis, manage/ co- manage, counsel, prescribe and/or refer them to appropriate health care professionals/rehabilitation professionals.



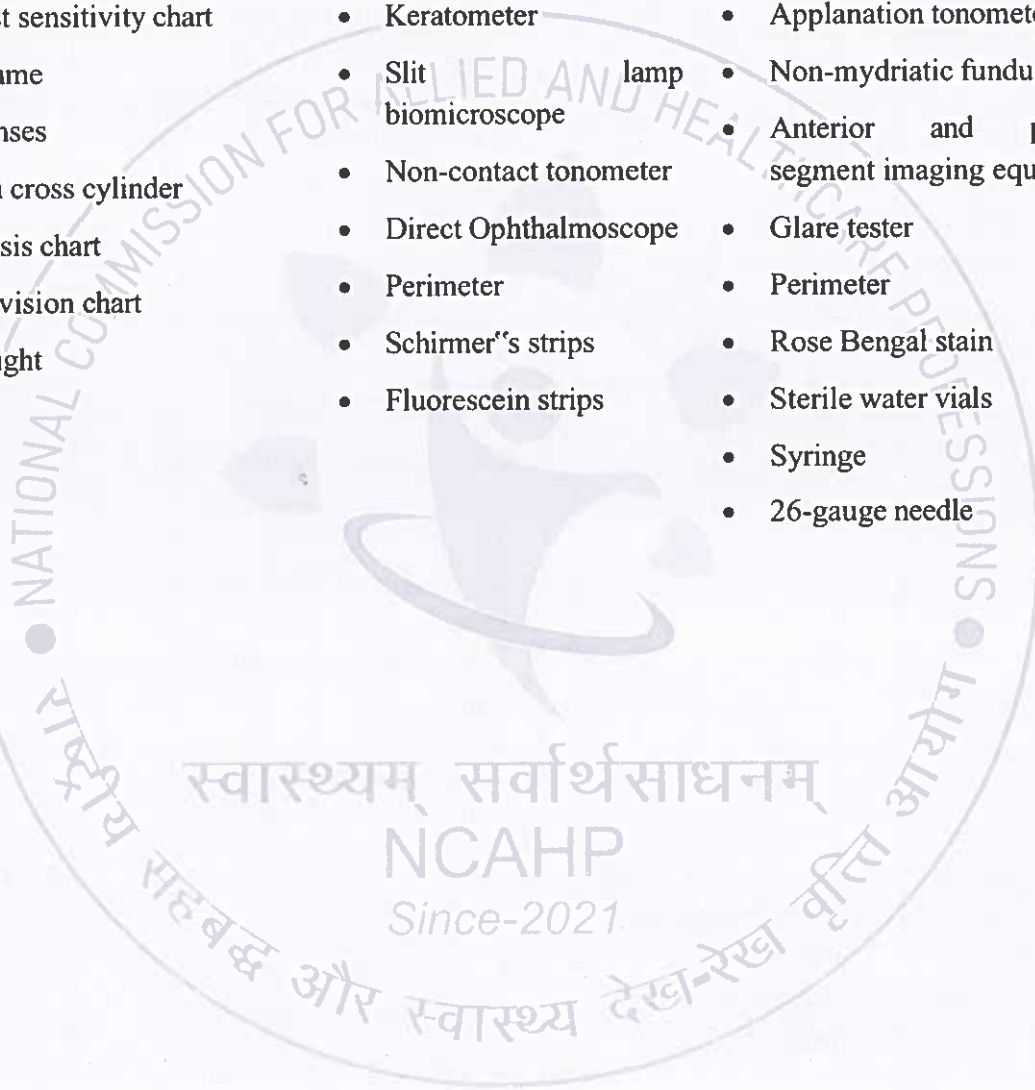
Required instruments and tools:

Must have

- Distance acuity charts
- Near vision charts
- Contrast sensitivity chart
- Trial frame
- Trial lenses
- Jackson cross cylinder
- Stereopsis chart
- Colour vision chart
- Torch light

Desirables

- Lensmeter (focimeter)
- Retinoscope
- Keratometer
- Slit lamp
- biomicroscope
- Non-contact tonometer
- Direct Ophthalmoscope
- Perimeter
- Schirmer's strips
- Fluorescein strips
- Autorefractor
- Corneal topographer
- Applanation tonometer
- Non-mydratic fundus camera
- Anterior and posterior segment imaging equipment
- Glare tester
- Perimeter
- Rose Bengal stain
- Sterile water vials
- Syringe
- 26-gauge needle



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Performance Criteria	Indicators		
	Knowledge	Skill	Behavior
Ability to obtain relevant history and information relating to general health, previous ocular health, previous surgical/laser interventions, information on the investigation done, medication, family history, work, lifestyle and personal requirements	<ul style="list-style-type: none"> • In depth knowledge on different ocular and systemic conditions. • A deep understanding of what aspects of history are relevant and what questions to ask and how to ask. • Awareness of evidence based optometric practice literatures or guidelines to avoid errors related to clinical practice. 	<ul style="list-style-type: none"> • Elicits the chief complaints, laterality, associated symptoms, past ocular history, family history, past medical history, medical (past and present) and surgical interventions (past), investigations (past and recent) and medicinal allergies. • Ascertains social history, travel history, ethnicity or developmental history wherever necessary • Documents the history in a logical, structured and comprehensive manner and mentally arrive at tentative diagnosis as well as possible other diagnosis (differential diagnosis) • Probes by asking relevant questions to the patient 	<ul style="list-style-type: none"> • Greets the patient, establishes eye contact, rapport, allows the patient to speak initially and remain an active listener.
Ability to assess the well-being of the patient before proceeding with the various tests	<ul style="list-style-type: none"> • Extensive knowledge in the fundamental anatomy and physiology of the human body 	<ul style="list-style-type: none"> • Observes the patients' faces and expressions • Observes the patients' gait, posture and decubitus* • Observes clothing and paraphernalia • Observes stature and habitus 	<ul style="list-style-type: none"> • Being observant, investigative, awareness of the clues

		<ul style="list-style-type: none"> • Observes patient's demeanor • Listens to the patients' quality of voice and cough sounds • Observes if patient is cachectic or obese 	
Ability to determine the visual acuity / vision of the patient	<ul style="list-style-type: none"> • Has thorough understanding of the concept, various methods and notations • Is conversant with standard precautions 	<ul style="list-style-type: none"> • Assesses monocular and binocular visual acuity testing using equipment such as Snellen chart/ picture charts / illiterate charts / LogMAR / ETDRS charts etc. • Conducts selective age-appropriate assessments • Measures improvement of vision with pinhole were indicated • Assesses vision through objective method if indicated • Assesses contrast sensitivity • Documents the results appropriately 	<ul style="list-style-type: none"> • Conducts the various assessments with confidence • Is analytical in interpreting the test outcomes
Ability to determine the refractive status of the patient objectively	<ul style="list-style-type: none"> • Has in-depth understanding of the optics of the eye • Has in-depth knowledge on the various methods and the process of assessing the refractive status of the eye 	<ul style="list-style-type: none"> • Determines the refractive status of the patient eye objectively using retinoscope • Cross checks retinoscopy with keratometry and autorefractor values if required • Carries out cycloplegic refraction judiciously within legal boundaries 	<ul style="list-style-type: none"> • Is proficient, confident and culturally sensitive to the use of various instruments like retinoscope, keratometer, autorefractors, pertained to

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	<ul style="list-style-type: none"> • Understands the role of accommodation in determining the refractive state of the eye • Understands the need for cycloplegia and knowledge of various cycloplegic agents 		<p>the assessment of refractive status objectively</p> <ul style="list-style-type: none"> • Is analytical in interpreting the test outcomes
<p>Ability to determine the refractive status of the patient subjectively and prescribe appropriate glasses.</p>	<ul style="list-style-type: none"> • Understands the visual characteristics of various refractive states of the eye namely emmetropia and ametropia • Has general understanding of the relationship between disease states and refractive state of the eye • Understands the need for clear vision • Understands the influence of age, accommodation ocular structures like cornea and lens on the refractive state of the eye • Understands the prescribing guidelines for various refractive errors 	<ul style="list-style-type: none"> • Determines and confirms monocular spherical and cylindrical spectacle prescription • Perform binocular balancing wherever necessary • Determines the near correction of the patient based on relevant factors • Records the values appropriately and prescribes the spectacle for the patient 	<ul style="list-style-type: none"> • Can appraise and analyse patient's situations • Is empathetic and supports patients in the use of spectacles

<p>Ability to determine the pupillary functions and ability to refer in indicated cases</p>	<ul style="list-style-type: none"> • Essential knowledge on pupil dimensions and color, pupillary pathway, and the ocular conditions associated with pupil. • Adequate knowledge of evidence-based practice guidelines on pupillary examination, interpretation, documentation and referral/management • Knowledge on the role of ophthalmologist and optometrist in relation to pupillary abnormalities 	<ul style="list-style-type: none"> • Informs the patient while evaluating the pupils in two different lighting (less lighting and normal ambient lighting) • Appreciates the pupil size, anisocoria, shape and reaction to light and near objects and differentiate normal from abnormal pupil. • Appreciates direct and consensual light reflex and relative afferent pupillary defect and light -near dissociation of pupil • Documents the findings following a standard protocol 	<ul style="list-style-type: none"> • Before using the torch light, ensure that patient is comfortable with the intensity of the light.
<p>Ability to assess tear dynamics and ability to manage tear abnormalities or refer in indicated cases</p>	<ul style="list-style-type: none"> • In-depth knowledge about tear film layers, its structure, functions, properties, composition and associated abnormalities • Keep abreast of the new evidences in the practice of diagnosing and managing tear film abnormalities • Knowledge of the basic optical principles of instruments used for evaluating tear film 	<ul style="list-style-type: none"> • Evaluates the tear film layers, associated corneal and conjunctival changes by using appropriate equipment and questionnaire. • Performs relevant tests to assess the tear film • Documents the findings in appropriate way and arrives at the diagnosis. • Manages and /or refers the patients appropriately 	<ul style="list-style-type: none"> • Seeks approval before performing tests • Demonstrates patience while performing various procedures on the patients

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	<ul style="list-style-type: none"> • Knowledge on the role of ophthalmologists and optometrists in relation to conditions associated with tear film. 		
Ability to examine the Anterior segment of the eye and ability to refer indicated cases appropriately	<ul style="list-style-type: none"> • In-depth knowledge related to anterior segment structures, their functions, normal dimensions and abnormal conditions associated with anterior segment • Knowledge on the optical principles of various ophthalmic instruments used for evaluating the anterior segment • Knowledge on the role of ophthalmologists and optometrists in relation to anterior segment conditions 	<ul style="list-style-type: none"> • Evaluates the anterior segment using torch light (with or without loupe) and slit lamp bio- microscope. • Differentiates normal and abnormal findings in anterior segment • Arrives at the probable diagnosis • Interprets the report related to various imaging techniques used to evaluate anterior segment. 	<ul style="list-style-type: none"> • Same as above

<p>Ability to assess the intraocular pressures of the eye and ability to refer indicated cases</p>	<ul style="list-style-type: none"> • Adequate knowledge about various types of tonometers, their optical principles, advantages and disadvantages • Adequate knowledge about the physiology of maintaining intraocular pressure and probable mechanisms of abnormal intraocular pressure • Knowledge on indications and contraindications of usage of different types of tonometers 	<ul style="list-style-type: none"> • Demonstrate the usage of various kinds of contact and non-contact tonometers • Calibrates the tonometer before use • Explains the purpose and the procedure of the test performed on the patient • Interprets the readings got from tonometers • Plans further tests essential for those who had deviated eye pressure • Documents the readings in a standard format • Performs tonometry in the follow-up case and counselor refer to the glaucoma expert 	<ul style="list-style-type: none"> • Same as above
<p>Ability to examine the posterior segment of the eye and ability to refer indicated cases</p>	<ul style="list-style-type: none"> • In-depth knowledge on posterior segment anatomy and physiology as well as pathology along with understanding of various posterior ocular diseases • Adequate knowledge on the optical principles of various ophthalmic instruments used in diagnosis of posterior segment diseases 	<ul style="list-style-type: none"> • Evaluates central and peripheral retina with appropriate instruments • Uses mydriatic agents, when necessary, within legal boundaries • Manages i.e., counsels and/or refers appropriately to retina specialist or low vision care expert with adequate, relevant information 	<ul style="list-style-type: none"> • Same as above

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	<ul style="list-style-type: none"> • Knowledge about usage of mydriatic. • Appropriate knowledge on the role of ophthalmologists and optometrists in relation to posterior segment conditions 		
Ability to perform ancillary tests based on patient's history and preliminary examination	<ul style="list-style-type: none"> • Adequate knowledge about various eye conditions, the different ancillary tests to confirm the diagnosis, the basic principle of those tests, the advantages and limitations of those tests, interpretation of the results based on the normative values or master reference document. • Knowledge on existing best clinical guidelines and evidences, to decide on the ancillary tests 	<ul style="list-style-type: none"> • Performs appropriate ancillary tests based on the preliminary findings and complaints. Examples: Colour vision tests, contrast sensitivity function tests, stereopsis test, Gonioscopy, photostress test, perimetry, Amsler grid test, commonly used anterior segment and posterior segment imaging tests, potential acuity meter etc. • Interprets the results/ reports and corroborates other clinical findings and diagnoses the condition. • Identifies or detects unreliable findings either due to human error or because of the instrument error. • Calibrates the diagnostic instruments or seeks the support of bioengineer or instrument manufacturers when required. 	<ul style="list-style-type: none"> • Same as above

*Decubitus refers to the observed posture of the patient in bed

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Contact Lenses

Description: Ability of the optometrist to elicit relevant history, perform necessary diagnostic tests and ascertain appropriate type of contact lenses. Optometrist should be able to fit and dispense various types of contact lenses, counsel the patients, manage after care and refer / manage / co- manage patients with the specialists when required.

Required instruments and tools:

Must have		Desirables
<ul style="list-style-type: none">• Torch light• Keratometer• Slit lamp bio-microscope• Fluorescein strips• Contact lens trial sets (RGP) & disposable trial lenses (soft)	<ul style="list-style-type: none">• Area to teach lens insertion and removal• Mirror• CL solutions• Hand towels/tissues• Wash Basin	<ul style="list-style-type: none">• Written filter• Burton lamp• Infographics and written instructions• Corneal topographer

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Raj Kumar

Aditya

Aroop Das

Performance Criteria	Indicators		
	Knowledge	Skill	Behavior
Ability to ensure patient safety in contact lens practice	<ul style="list-style-type: none"> • Understanding of various contact lens solutions and their interactions with different type of lenses and materials • Awareness of various ways of disinfecting contact lens trial sets to make them safe for usage • Understanding of various microbes that may cause issues with lens wear and how to eliminate them 	<ul style="list-style-type: none"> • Demonstrates proper contact lens cleaning and disinfecting steps using various cleaners and even lab cleaners • Makes and follows a disinfecting routine of all trial sets conscientiously 	<p>Prioritize patient's safety</p>
Ability to assess the suitability of contact lenses as a form of correction for a patient and counsel the patient accordingly	<ul style="list-style-type: none"> • Awareness of how the lifestyle, vocational needs, vision, refraction, comfort, duration of wear, environment affects contact lens wear • Knowledge and understanding about the ocular physiology and systemic diseases and their interaction with contact lens materials/types 	<ul style="list-style-type: none"> • Elicits proper history that is relevant for contact lens wear based on the understanding of theory • Assesses ocular integrity and physiology (using slit lamp, keratometer, vital staining, tear function tests) and correlate them to the history to conclude the type of lens 	<ul style="list-style-type: none"> • Be a good listener and ask probing questions without intimidating the patient • Should be polite and understanding yet be confident and assertive when conveying the lens choice • Confident and efficient in performing tests

	<ul style="list-style-type: none"> • Ability to spot risks contraindicated to contact lens wear and knowledge to reduce these risks by taking appropriate actions • In depth knowledge of all contact lens materials and lens types including specialty contact lenses 	<p>design and material to be prescribed</p> <ul style="list-style-type: none"> • Counsels the patients regarding probable risk factors, if any and what steps need to be taken to make contact lens wear safe. • Recommends right lens using professional expertise 	
<p>Ability to fit and order the most appropriate parameters of soft contact lens based on examination of various ocular parameters</p>	<ul style="list-style-type: none"> • Understanding about the various soft contact lens parameters and how they translate into lens fitting • Understanding of fitting characteristics of optimum, flat and steep fit and how to modify the fit if not optimum 	<ul style="list-style-type: none"> • Based on the profiting evaluation, selects appropriate soft lens parameters – Back vertex power, base curve, Total Diameter, material, design, within the available range of parameters • Assesses the fit of lenses using a variety of techniques and instruments – Coverage, centration, post blink movement, lens lag, lower lid push-up test, vision, comfort etc. 	<p>Patience and conscientiousness</p>

		<ul style="list-style-type: none"> • Makes appropriate adjustment in lens parameters for best fit and computes the order for laboratory • Writes an appropriate order for a soft lens 	
Ability to train the patient in soft lens handling and how to wear and maintain them	Knowledge of the tricks that may be used to apply and remove the lenses confidently, how various contact lens solutions are different and have detailed understanding about the dos and don'ts of contact lenses	<ul style="list-style-type: none"> • Trains the patient in the techniques of soft lens application, removal and other relevant handling instructions • Guides the patient about the advantages and importance of contact lens maintenance and selects the right soft contact lens care system • Instructs the patient on the principles of soft lens wear and care including use of soft lens care products, Dos and Don'ts, aftercare 	Exhibits patience, empathy, confidence

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<p>Ability to manage the aftercare of patients wearing soft lenses</p>	<ul style="list-style-type: none"> • Understanding of adaptation and aftercare issues and how to manage them • Understanding of the routine of a soft CL aftercare consultation -schedules after-care visits, replacement schedules, care and maintenance regimen, deposits • Awareness of indications for lens removal, and of seeking urgent care. 	<ul style="list-style-type: none"> • Thoroughly examines the eye under microscope to pick un any early and unwanted changes so they can be rectified before it's a cause of concern • Trouble shoots in case of any issues • Reinforces care and maintenance instructions and assesses the compliance by asking the patient to demonstrate 	<p>Be assertive like a consultant and not to compromise at this step.</p>
<p>Ability to select, fit and order the most appropriate rigid gas permeable contact lens based on patient's refraction, visual requirements and other findings</p>	<ul style="list-style-type: none"> • Detailed knowledge of the range of rigid lens materials and designs available • Understanding of all the parameters, range of Base curve, diameter and power availability of various RGP CL companies that are available • Knows how to modify the parameters of various RGP CL in order to obtain an appropriate fit • Knowledge of how to assess fluorescein pattern and the influence of lids on the RGP fit 	<ul style="list-style-type: none"> • Makes the appropriate choice of rigid lens parameters – Back vertex power, base curve, total diameter, optic zone diameter, design, material etc • Assesses the fitting of a rigid lens – Dynamic and static (understands and interprets fluorescein patterns) • Makes appropriate adjustment in lens parameters for best fit • Writes an appropriate order for a rigid lens 	<ul style="list-style-type: none"> • Be empathetic towards any discomfort patient experiences • Patience

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	<ul style="list-style-type: none"> • Knowledge about RGP lenses used in specialty fitting such as Keratoconus, OrthoK, scleral lenses, mini scleral lenses 		
Ability to instruct the patient in rigid lens handling, how to wear and care for them	<ul style="list-style-type: none"> • Understanding of the rigid lens care systems— Disinfectants, intensive cleaners etc. • Knowledge to instruct the patient on how to insert and remove RGP CL. • Awareness of the complications in case of a non-compliant patient 	<ul style="list-style-type: none"> • Instructs the patient in the techniques of RGP lens insertion, removal and other relevant handling instructions • Instructs a patient on the principles of RGP lens wear and care including the use of RGP lens care products, Dos and Don'ts • Explain importance of hand hygiene and lens case hygiene 	<ul style="list-style-type: none"> • Be patient while instructing and while the patient is learning how to use CL • Do not intimidate the patient while teaching how to handle the CL. • Be firm and professional while delivering instruction for CL care.
Ability to manage the aftercare of patients wearing rigid lenses	<ul style="list-style-type: none"> • Understanding of rigid lens adaptation and aftercare issues and how to manage them • Knowledge of the content and routine of a rigid CL aftercare consultation 	<ul style="list-style-type: none"> • Carries out the relevant tests and assessments which are required in a routine rigid lens aftercare consultation • Schedules appropriate time lines for after care • Analyses the care regimen that the patient is following and correlate with what was prescribed 	<ul style="list-style-type: none"> • Observation skills as you elicit history of patient and complaints if any

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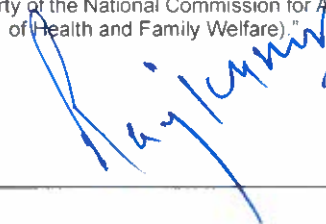
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		<ul style="list-style-type: none"> Asks probing questions to patient in terms of how he/she handles and takes care of CL Requests patient to demonstrate cleaning procedure in front of the practitioner 	
Ability to manage astigmatic patients with contact lenses	<ul style="list-style-type: none"> Knowledge of the types of astigmatism Understanding of the designs and materials available in toric contact lenses 	<ul style="list-style-type: none"> Chooses the appropriate type of CL correction to meet the relevant needs of the patient Assesses the fit and orientation and makes appropriate adjustments in the final prescription- (application of LARS / CAAS rule in toric lenses) 	<ul style="list-style-type: none"> Explain the need for such a lens and the benefits of the same to patient.
Ability to manage presbyopic patients with contact lenses	<ul style="list-style-type: none"> Understanding of presbyopia Knowledge of various modes of correction for presbyopia such as single vision, multifocal lenses Understanding of ocular dominance and troubleshooting in case patient is dissatisfied with the outcome 	<ul style="list-style-type: none"> Explains to the patient various options that are available in correcting presbyopia with CLs and explains their benefits to enhance the lifestyle of the patient. Chooses the appropriate type of CL correction to meet the relevant needs of the patient Assesses fit, vision and modifies the prescription/fit if necessary. 	<ul style="list-style-type: none"> Active listening, probing and counselling

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<p>Ability to verify the parameters on receiving the lenses</p>	<ul style="list-style-type: none"> • Understanding of prescription format and lens packaging • Awareness of acceptable norms and standards • Knowledge of principles, construction, step-by- step process and calibration of instruments used to verify parameters 	<ul style="list-style-type: none"> • Checks material, power, base curve, diameter of the delivered lens against the prescription order • Verifies power, base curve, diameter of the lens against the denoted parameters 	<ul style="list-style-type: none"> • Eye for detail and conscientiousness • Be polite yet firm and specific in dealing with the manufacturers in case of discrepancy
<p>Ability to recommend and prescribe therapeutic and cosmetic/ prosthetic contact lenses</p>	<ul style="list-style-type: none"> • Demonstrates an understanding of conditions requiring these lenses –Aniridia; trauma; amblyopia; corneal scar, recurrent corneal erosion, bullous keratopathy etc. • Knowledge of materials, parameters and availability of bandage lenses • Knowledge of fitting, aftercare and complications of these lenses 	<ul style="list-style-type: none"> • Makes appropriate choice of lens parameters –base curve, total diameter, material, tint etc. • Accurately assesses the fit of the lens • Recommends appropriate after care schedule 	<ul style="list-style-type: none"> • Empathetic towards patient during the entire procedure • Shows patience and confidence while smoothly maneuvering through various steps
<p>Ability to identify and manage Contact lens related complications</p>	<ul style="list-style-type: none"> • Knowledge of etiology, symptoms, signs and management of contact lens related complications 	<ul style="list-style-type: none"> • Identifies CL complications on the basis of etiology, type of lens, structures • Evaluates previous wear compliance • Demonstrates skilled history taking related to problem solving 	<ul style="list-style-type: none"> • Be a good listener and ask probing questions • Exhibits patience, empathy, confidence to get the best out of the patient


		<ul style="list-style-type: none"> Manages the complication within the scope of practice and demonstrates understanding of timely referral 	<ul style="list-style-type: none"> Demonstrates observation and analytical skills to connect the symptoms and signs
Ability to refer special cases to contact lens experts	<ul style="list-style-type: none"> Knowledge of various conditions that can be alleviated by specialty contact lenses 	<ul style="list-style-type: none"> Identifies conditions that require specialty contact lens fitting - Keratoconus, irregular corneas, dry eye, post refractive surgery, myopia management etc. Refers the patients to relevant practitioner 	<ul style="list-style-type: none"> Shows respect while interacting with other professionals Crisp and clear communication

Binocular Vision

Description: Ability of the optometrist to elicit appropriate history, to understand and perform relevant clinical binocular vision diagnostic tests and ascertain appropriate diagnosis for strabismic and non-strabismic anomalies. He/she should also be able to perform basic vision therapy and refer / manage / co-manage patients with the specialists in the field of binocular vision and vision therapy.

Required instruments and tools:

Must have	Desirables
<ul style="list-style-type: none"> Worth's Four Dot Test 	<ul style="list-style-type: none"> Vergence flippers
<ul style="list-style-type: none"> Accommodative flippers (+/- 1.50, 2.50) 	<ul style="list-style-type: none"> Transilluminator
<ul style="list-style-type: none"> Thorington card (distance and near) 	<ul style="list-style-type: none"> Translucent occlude
<ul style="list-style-type: none"> Maddox rod and trial lenses (complete trial set) 	<ul style="list-style-type: none"> Gulden sticks
<ul style="list-style-type: none"> Prism bars (horizontal and vertical) 	<ul style="list-style-type: none"> Rotary prism
<ul style="list-style-type: none"> Stereo acuity test 	<ul style="list-style-type: none"> MEM cards
<ul style="list-style-type: none"> Streak Retinoscope 	<ul style="list-style-type: none"> WFDT torch
<ul style="list-style-type: none"> Direct Ophthalmoscope 	<ul style="list-style-type: none"> Loose prism set

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Performance Criteria	Indicators		
	Knowledge	Skill	Behavior
<ul style="list-style-type: none"> Ability to assess and interpret the diagnostic parameters of motor binocular vision and oculomotor performance 	<ul style="list-style-type: none"> In depth knowledge of Binocular vision, its functions, and abnormal conditions associated with binocular vision Anatomical and physiological knowledge of the extra ocular muscles, vestibulo ocular complex, their neurological connections and nerve supply Essential knowledge related to pathophysiology of various conditions associated with extra ocular muscles. Knowledge of normal and adverse oculomotor responses related to: Stability and eccentricity of fixation, versions, vergences, near vision complex, ductions, saccades, pursuits, ocular deviations, comitancy, physiological and 	<ul style="list-style-type: none"> Demonstrates good communication skills and explains the tests and the procedures to the patient/ the care giver in a simple language without using technical jargon. Performs a detailed assessment of oculomotor functions in infants, children and adults using standard clinical procedures and interprets these findings in the light of the underlying physiology of these responses: steady-state fixation (stability of fixation, eccentricity of fixation, etc.), ductions, saccades, pursuits, various forms of physiological and pathological nystagmus, vestibulo-ocular reflex Performs a detailed assessment of the binocular oculomotor functions in infants, children and adults using standard clinical procedures sequentially, using appropriate equipment and interpret these findings in the light of the underlying physiology of these 	<ul style="list-style-type: none"> Able to establish eye contact, and rapport, allows the patient to speak initially and remains an active listener. Should have a good observation and analytical capacity to notice and interpret small changes in the movements of the eyes and body while performing the test Should have patience to carry out the tests and repeat them if required. Should be able to explain and clarify the questions confidently and adequately. Should be confident, adaptable, and culturally sensitive towards the patients. Should be empathetic towards the patient and understand their difficulty if they are not able to perform any procedure adequately.

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	<p>pathological nystagmus.</p> <ul style="list-style-type: none"> • Essential knowledge of the principles and procedures for various oculomotor and vestibulo ocular tests used for evaluating binocular vision anomalies. • Knowledge of standard terminologies and abbreviations used in the interpretations and analysis of the tests performed. • Awareness of the role of optometrist in relation to oculomotor anomalies 	<p>responses: vergence (fusional, accommodative, proximal), horizontal and vertical phorias, graphical analysis of the zone of clear and single binocular vision, versions and comitancy of deviations.</p>	
<ul style="list-style-type: none"> • Ability to assess and interpret accommodative status. 	<ul style="list-style-type: none"> • Essential knowledge of mechanism of accommodation, accommodation pathway, range and amplitude of accommodation and the ocular conditions associated with accommodation. 	<ul style="list-style-type: none"> • Explains the tests and the procedures to the patient/ the care giver in a simple language without using technical jargon. • Able to measure near point of accommodation and amplitudes (monocular and binocular), relative accommodation, accommodative facility (monocular and binocular), 	<ul style="list-style-type: none"> • Same as above

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	<ul style="list-style-type: none"> • Knowledge of the tests to assess magnitude, facility, response and relative cooperation of accommodation with vergence. • Adequate knowledge to interpret results of accommodation examination, management, co management and referral of the patients appropriately. 	<p>accommodative response and accuracy using standard test procedures and equipment.</p>	
<ul style="list-style-type: none"> • Ability to assess and interpret the diagnostic parameters of sensory binocular vision 	<ul style="list-style-type: none"> • Adequate knowledge of neuroanatomy of the visual system, purpose and relevance of sensory processing. • Knowledge of sensory tests, their principles, procedures, and interpretation of the test results. • Knowledge of use of appropriate illumination levels, complimentary colours, their wavelength and the effects on the sensory status. 	<ul style="list-style-type: none"> • Explains the tests and the procedures to the patient/ the care giver in a simple language without using technical jargon. • Performs a detailed assessment of various aspects of the sensory binocular system using standard clinical procedures and equipment. • Interprets the findings in the light of underlying physiology of these responses: normal and abnormal forms of sensory correspondence, fusion, diplopia, suppression, stereopsis, distortions in space due to abnormal binocularity 	<ul style="list-style-type: none"> • Same as above

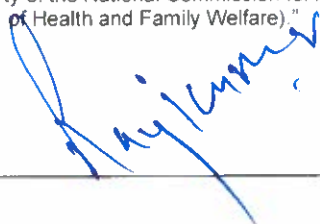
	<ul style="list-style-type: none"> • Understanding of neural adaptation, its mechanism, and its application clinically. 	(e.g., those induced due to aniseikonia, anisometropia, etc.).	
<ul style="list-style-type: none"> • Ability to diagnose and manage amblyopia 	<ul style="list-style-type: none"> • Understanding of the causes for development of amblyopia. • Adequate knowledge of neuro plasticity and its mechanism. • Knowledge of the latest treatment/management modalities for amblyopia. • Understanding of how to manage, co-manage, and further refer the patient appropriately. 	<ul style="list-style-type: none"> • Explains the tests, procedures, and possible prognosis to the patient/caregiver. • Performs diagnostic tests to evaluate the underlying sensory and spatial adaptations in amblyopia (e.g., decreased visual acuity, contrast sensitivity, crowding, suppression). • Performs tests to evaluate underlying motor discrepancies resulting in amblyopia (e.g., poor accommodative and vergence behaviour, eccentric fixation, etc.) • Manages and co-manages the patient using non-surgical procedures such as different types of occlusions, lenses (spectacles and contact lenses), and basic vision therapy procedures. • Refers the patient appropriately for surgical or medical management. 	<ul style="list-style-type: none"> • Same as above

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<ul style="list-style-type: none"> • Ability to identify and manage children at risk of developing binocular vision anomalies. 	<ul style="list-style-type: none"> • Knowledge and understanding of neural and ocular development (pre, peri, and post-natal). • Sufficient knowledge of delay/improper neural/ocular development at different stages. • Knowledge of eliciting appropriate family history and understands developmental disorders leading to binocular vision anomalies. • Knowledge of age-appropriate tests and procedures to diagnose the anomalies. 	<ul style="list-style-type: none"> • Identifies signs and symptoms in relation to personal / family history. • Administers and interprets age-appropriate procedures required to assess developmental ability. • Provides appropriate management to the child within the scope of practice, co-manages when required and refers timely for further management. • Schedules follow up routine appropriate to underlying condition/s. 	<ul style="list-style-type: none"> • Same as above
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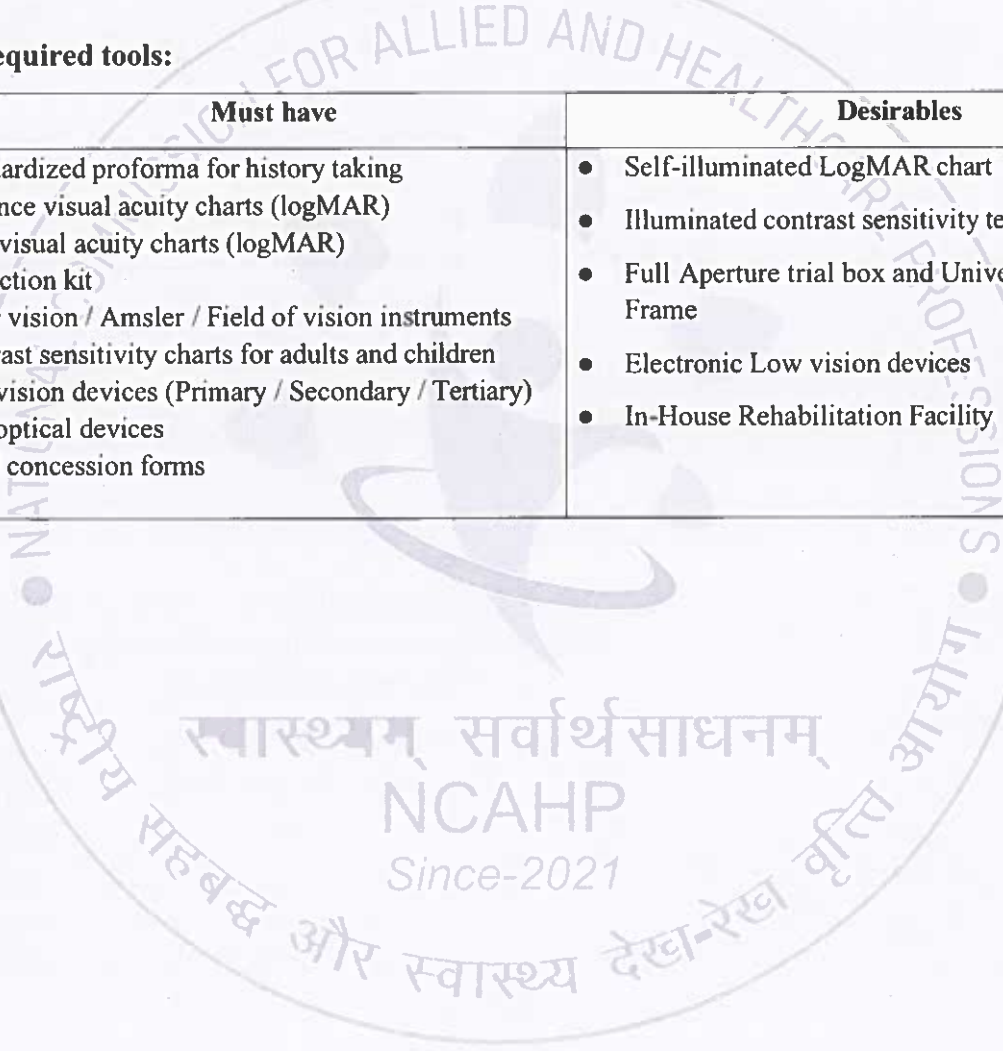




Vision Impairment

Description: Ability of the optometrist to obtain accurate history, to perform (according to internationally accepted standard procedures) clinical refraction, anterior and posterior segment evaluation, status of cranial nerves related to eye and adnexa, ability to evaluate for, select and prescribe contact lens and low vision devices, evaluate binocular vision status, arrive at the diagnosis, manage/ co- manage, counsel, prescribe and/or refer them to appropriate health care professionals /rehabilitation professionals

Required tools:

Must have	Desirables
<ul style="list-style-type: none">● Standardized proforma for history taking● Distance visual acuity charts (logMAR)● Near visual acuity charts (logMAR)● Refraction kit● Color vision / Amsler / Field of vision instruments● Contrast sensitivity charts for adults and children● Low vision devices (Primary / Secondary / Tertiary)● Non-optical devices● Legal concession forms	<ul style="list-style-type: none">● Self-illuminated LogMAR chart● Illuminated contrast sensitivity test● Full Aperture trial box and Universal Trial Frame● Electronic Low vision devices● In-House Rehabilitation Facility



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Performance Criteria	Indicators		
	Knowledge	Skill	Behavior
<ul style="list-style-type: none"> Ability to identify patients benefiting from low vision services 	<ul style="list-style-type: none"> In depth knowledge on different ocular and systemic conditions A deep understanding of what aspects of history are relevant and what questions to ask and how to ask 	<ul style="list-style-type: none"> Takes relevant history from the patient with emphasize on task related history Elicits the chief complaints, laterality, associated symptoms, past ocular history, family history, past medical history, medical (past and present) and surgical interventions (past), investigations (past and recent) and medicinal allergies. Documents the history in a logical, structured and comprehensive manner and mentally arrive at tentative diagnosis as well as possible other diagnosis (differential diagnosis) Probes by asking relevant questions to the patient 	<ul style="list-style-type: none"> Ascertains social history, travel history, ethnicity Greets the patient, establishes eye contact, and rapport, allows the patient to speak initially and remain an active listener. Empathy- understands the psychological status of the patient and counsels if needed before starting the LVD trial Clear and crisp communication Remains calm and patient while answering the questions of patients with low vision

<ul style="list-style-type: none"> • Ability to perform comprehensive low vision work up 	<ul style="list-style-type: none"> • Knowledge of a comprehensive Low vision work up, including VA, accurate objective and/or subjective refraction, functional vision assessment and suitable rehabilitation 	<ul style="list-style-type: none"> • Assesses functional vision tests, like LogMAR visual acuity for distance and near. Contrast Sensitivity for distance and near • Functional visual field assessment using devices and Amsler test. If patient is SVI category to perform confrontation. • Records other visual functions like color vision and reading speed. 	<ul style="list-style-type: none"> • Same as above
<ul style="list-style-type: none"> • Ability to identify and prescribe low vision devices suited to the patient's visual requirements and functional needs 	<ul style="list-style-type: none"> • Knowledge of pathology associated with low vision; and awareness of indications and contraindications of different devices for low vision pathology • Awareness of incidental optical effects, low vision aid design, aberrations, unwanted prismatic effects, tints, lighting requirements associated with different devices. 	<ul style="list-style-type: none"> • Selects and prescribes the most appropriate optical and/or non- optical low vision device • Considers the ability of the patient to manipulate the device and to meet the cost. • Considers the physical ability and the age factor of the patient to manage different devices. 	<ul style="list-style-type: none"> • Same as above
<ul style="list-style-type: none"> • Ability to demonstrate a range of low vision devices 	<ul style="list-style-type: none"> • Knowledge of correct working distances with magnification requirements. • Knowledge of appropriate lighting conditions 	<ul style="list-style-type: none"> • Demonstrates selection of correct working distance to the patient for the power selected. • Evaluates and monitors the success of the low vision device and prescribes additional or alternative devices 	<ul style="list-style-type: none"> • Same as above

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	<ul style="list-style-type: none"> • Knowledge of training requirements for the success of low vision devices for near and distant tasks. • Awareness of patient's compliance with the device. • Knowledge of simulation of the condition and devices to the escort. 	<ul style="list-style-type: none"> • Schedules appropriate follow up routine and understands its importance 	
<ul style="list-style-type: none"> • Ability to instruct the patient about the use of low vision devices 	<ul style="list-style-type: none"> • Knowledge of optics of LVDs and how the patient needs to be instructed to use device for best performance • Knowledge of eccentric viewing techniques for understanding preferred eye and retinal loci 	<ul style="list-style-type: none"> • Reviews follow up visits, re-assessment of the vision and the efficacy of the device for the functional needs of the patient • Identifies appropriate non-optical device which will be useful along with optical aid for better functional performance • Provides proper instructions on handling the devices and ensures that the patient has understood the process 	<ul style="list-style-type: none"> • Maintains patience throughout the learning and training duration and if needed to get patient to come for multiple visions
<ul style="list-style-type: none"> • Ability to inform and if necessary, refer the patient to other rehabilitative services. 	<ul style="list-style-type: none"> • Knowledge of correct referral to tertiary Low vision clinics, other practitioners, co-management team (Ophthalmologist, Rehabilitation specialist, Orientation and mobility expert) 	<ul style="list-style-type: none"> • Refers appropriately for further management i.e., Speech therapist, Physiotherapist, Occupational Therapist, Special Educators, Neuro-physicians. 	<ul style="list-style-type: none"> • Maintains motivating tone and provides confidence through appropriate approach

	<ul style="list-style-type: none"> • Awareness of career opportunities based on functional vision • Knowledge on visual disability as per Government, handicap certificates and various concessions and job reservations that are provided to visually impaired population. 	<ul style="list-style-type: none"> • Refers to appropriate centers for training for job-oriented competencies 	<ul style="list-style-type: none"> • Infuses hope in patient/ guardian even if devices do not benefit career and other opportunities are present and there is hope.
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Optical Dispensing

Description: Ability to counsel, guide and dispense appropriate spectacle lenses (in accordance with international standards), spectacle frames based on the prescription, facial and frame measurements, need and demand of patient upon eye examination done by the optometrist or any other eye care practitioner. It further offers the ability to counsel, guide and dispense appropriate spectacle to pediatric and special populations. It can also be viewed as a common guideline for the optometric institutions to meet the consensus during the dispensing related pedagogic activities. Moreover, the document also provides the list of minimum required equipment necessary to meet the competencies during core institutional education.

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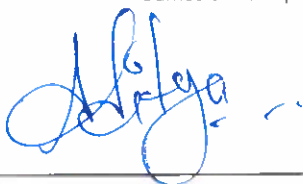
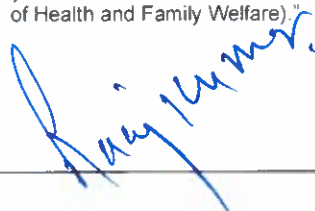
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Required instruments and tools:

Must have		Desirables
<ul style="list-style-type: none"> ● Lensometer ● Geneva lens measure ● Trial box ● Axis, PAL's marking & grid chart ● Set of Ophthalmic lens types ● Set of tinted lens types ● Set of lenses with coatings ● Trial frame (with vertex reading, PD) ● Set of variety of spectacle frames 	<ul style="list-style-type: none"> ● Frame measurement ruler ● PAL's Dispensing set ● PD ruler ● Pupilometer ● Facial measurement gauge ● Head & temple width caliper ● Plier set ● Frame warmer 	<ul style="list-style-type: none"> ● Thickness gauge ● UV tester ● Polarizing tester ● Edger ● Spectacle accessories (nose pads, spectacle bands etc.)


Performance Criteria	Indicators		
	Knowledge	Skill	Behavior
<ul style="list-style-type: none"> Ability to understand the patient's expectations and visual needs 	<ul style="list-style-type: none"> In Depth knowledge to classify the visual task, its corrective aid and plan relevant questions accordingly. Adequate knowledge of lens designs, materials and enhancements and where to recommend them Differentiate between patient expectations and over expectations. 	<ul style="list-style-type: none"> Analyze the prescription, visual complaints/demands of customers and explain it in an appropriate manner. Compute, relate, predict various vocational and avocational visual needs. Make appropriate choices of spectacles and discuss them with customers. Analyze individual's personality, style quotient, visual habits, behavior and needs. Document the findings. 	<ul style="list-style-type: none"> Greet the patient, establish eye contact and rapport. Initiate with appropriate questions Allows the patient to speak and remain as an active listener.
<ul style="list-style-type: none"> Ability to identify errors & interpret the prescription 	<ul style="list-style-type: none"> Understanding of the refractive correction, specifications and notations in a prescription. 	<ul style="list-style-type: none"> Analyses the prescription, identifies the refractive correction and clarifies any queries pertaining to it Detects any documentation errors, unusual addition or prism (values & orientation) in the prescription. Explains and relates the need for correction and their adaptive symptoms Ensures the standard, validity of the prescription and recognizes any possible errors. 	<ul style="list-style-type: none"> Crisp and clear communication

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<ul style="list-style-type: none"> • Ability to identify parameters of previous spectacle and to address the associated concerns 	<ul style="list-style-type: none"> • Understanding of different optical parameters and related instruments. • Knowledge of different forms of transposition. • Adequate knowledge of the lens forms, materials and apparent errors. • Knowledge of various frame materials, types and dimensions essential for fitting. 	<ul style="list-style-type: none"> • Identifies and measures parameters of previous lens design using appropriate tools. • Transposes ophthalmic prescriptions in required forms. • Analyses and correlates patient concerns with previous spectacles based on the assessment of the fitted ophthalmic lens and frame. • In case of customized lenses: correlates the habitual prescription to the actual prescription. • Plans the most suitable spectacle to address patient concerns. 	<ul style="list-style-type: none"> • Actively listens to the patient's feedback with their current spectacles and future expectations. • Patience- Allows sufficient time for the individual to explain the required spectacle-related modifications while setting realistic patient expectations
<ul style="list-style-type: none"> • Ability to assess suitability of spectacles with respect to patient needs 	<ul style="list-style-type: none"> • Knowledge of refractive errors, visual demands depending on occupational or sports/leisure activities and effect of spectacle correction on visual performance. • Ergonomics: understanding of customer's habits, behavior, visual needs, • personality and lifestyle quotient 	<ul style="list-style-type: none"> • Selects and recommends appropriate spectacle frames & lenses based on needs, personality and lifestyle. • Documents the findings 	<ul style="list-style-type: none"> • Confident communication and thoughtful recommendation with clinical decision making.

<ul style="list-style-type: none"> • Ability to assist the patient in making right choice of frame material, type and designs 	<ul style="list-style-type: none"> • In-depth knowledge of frame materials, types, designs and their pros & cons. • Understanding of the suitability of frames based on the patient's lifestyle & requirements. 	<ul style="list-style-type: none"> • Selects frames based on the patient's physiological factors, features - benefits; suitability, fashion, safety factors, proposed usage and cost. • Correlates magnitude of refractive power and its need to select appropriate frame size and type • Suggests frame designs which suit different age groups/gender, profession and cosmesis. 	<ul style="list-style-type: none"> • Same as above
<ul style="list-style-type: none"> • Ability to relate facial shape and its proportions in suggesting appropriate spectacle frames. 	<ul style="list-style-type: none"> • Understanding of facial shape and its proportions. • Understanding of relating general anatomical features of face to appropriate frame selection. 	<ul style="list-style-type: none"> • Assesses the proportions of the face, differentiates its shape/cosmesis and suggests frame shapes accordingly. • Takes precise facial measurements and correlates them with the frame size and fit. • Confirms that the selected frame offers comfort, functionality and suitable fit. 	<ul style="list-style-type: none"> • Confidence and efficiency while taking facial measurement
<ul style="list-style-type: none"> • Ability to recommend appropriate spectacle frames for paediatric age groups 	<ul style="list-style-type: none"> • Knowledge on development of a child's facial features and difference between the facial characteristics between a child and an adult. 	<ul style="list-style-type: none"> • Takes accurate facial measurements and appreciates the implications of developing anatomical features • Selects frame that fits appropriately with consideration to prescription and cosmesis. 	<ul style="list-style-type: none"> • Exhibits good communication to ease the child during the entire process. Involves parent/guardian in the process when required • Empathetic and encouraging behavior

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	<ul style="list-style-type: none"> ● Knowledge of safe frame materials, type and temple styles for a child's active lifestyle. ● Comprehensive knowledge on facial features in special children and awareness of customized frames. 	<ul style="list-style-type: none"> ● Orders customized/handmade frames based on facial measurements. 	
<ul style="list-style-type: none"> ● Ability to recommend the appropriate ophthalmic lenses, enhancements with protective standards 	<ul style="list-style-type: none"> ● Knowledge and understanding of contemporary lenses, enhancements and their availability ● Knowledge of the types of ocular hazard and conditions for recommending appropriate lens treatments/enhancements. ● Understanding of the requirement of accepted norms related to spectacle wear. ● Understanding of the conditions requiring special optical appliances. 	<ul style="list-style-type: none"> ● Selects, recommends and prescribes special lens designs and enhancements based on prescription and the need. ● Chooses and recommends appropriate special optical appliances based on the condition. 	<ul style="list-style-type: none"> ● Empathy and confident communication and thoughtful recommendation with clinical decision making

<ul style="list-style-type: none"> • Ability to recommend ophthalmic lenses in paediatric age group 	<ul style="list-style-type: none"> • Understanding of the need for frequent prescription change and choice of ophthalmic lens and enhancements. • Adequate knowledge about special lens/prism fitting techniques in special conditions. 	<ul style="list-style-type: none"> • Effectively integrates lens materials, designs and enhancements to suit the prescription and needs. • Prescribes suitable tints, filters and prisms for children with special needs. • Thoroughly explains the importance to the child/parent about spectacle compliance and follow up visits. 	<ul style="list-style-type: none"> • Effective communication, patience and listening skills while addressing the child and the parents.
<ul style="list-style-type: none"> • Ability to perform face and frame measurements and markings in adults/pediatrics 	<ul style="list-style-type: none"> • Knowledge of various factors related to facial features development with age, prescription, frame selection and its importance. 	<ul style="list-style-type: none"> • Measures face and frame parameters using appropriate tools. Documents the findings. • Performs frame markings, and correlates to one another. Document the findings. 	<ul style="list-style-type: none"> • Confidence, etiquettes and appropriate communication
<ul style="list-style-type: none"> • Ability to document and order the parameters of ophthalmic lens and frame to the manufacturer 	<ul style="list-style-type: none"> • Understanding of the need and importance of documenting different parameters for the laboratory and the accepted format of the documentation. 	<ul style="list-style-type: none"> • Records, updates and retrieves the patient information throughout the follow-up visit or during legal issues. • Assesses the availability and orders the recommended parameters. • Highlighting the special instructions within the order form. 	<ul style="list-style-type: none"> • Crisp and clear communication, conscientiousness
<ul style="list-style-type: none"> • Ability to check whether the finished spectacles follow international standards & tolerance norms 	<ul style="list-style-type: none"> • Knowledge of international standards (ANSI & BS) 	<ul style="list-style-type: none"> • Applies international standard & tolerance level to decide on acceptance or rejection of the spectacle parameters 	<ul style="list-style-type: none"> • Same as above

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	<ul style="list-style-type: none"> Recognizes the importance of implementing stringent verification of spectacles and reducing patient returns. 	<ul style="list-style-type: none"> Cross-checks the frame parameters and dimensions as per the original order Plans a course of action if the spectacle is being rejected 	
<ul style="list-style-type: none"> Ability to adjust and align spectacle to standard - before and at the time of delivery 	<ul style="list-style-type: none"> Understanding of the importance of precise spectacle adjustment and alignment to enhance the visual outcome and comfort and the consequence of inappropriate alignment. Knowledge of different tools/pliers to be utilized for adjusting and aligning spectacles. 	<ul style="list-style-type: none"> Accurately adjusts and aligns the spectacle as per requirements without causing any damage. Provides spectacle handling instructions & resources to avoid misalignment or damage. 	
<ul style="list-style-type: none"> Ability to instruct the patient about adaptation and maintenance of the spectacles 	<ul style="list-style-type: none"> Knowledge of various adaptive symptoms and their solutions. Adequate knowledge of care and maintenance of the spectacles and counselling methods. 	<ul style="list-style-type: none"> Counsels for adaptation and usage of the new spectacle. Demonstrates best practices for handling the spectacle and its accessories. Sets realistic expectations with the new spectacles. 	<ul style="list-style-type: none"> Respect and respond positively to all the questions and instruct in a structured manner.

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	<ul style="list-style-type: none"> • Knowledge of frequently asked questions and their appropriate answers related to spectacle, usage, refractive error, ocular health, market trends, eye care products etc. 		
<ul style="list-style-type: none"> • Ability to gather information & manage patients with complaints (Trouble-shooting) 	<ul style="list-style-type: none"> • Comprehensive understanding of complaints of the patient and their root cause. • Knowledge of step-by-step procedure to resolve the complaints and underlying cause. 	<ul style="list-style-type: none"> • Probes by asking relevant questions to gather details on the core area of concern. • Re-evaluates frame & lens parameters and correlate any errors to patients' complaints. • Rechecks spectacle fit (on face). Identifies and corrects any misalignments using proper tools. • Decides to re-order of lens for non-rectifiable errors. 	<ul style="list-style-type: none"> • Listens actively, ask relevant questions and uses investigative approach • Empathy
<ul style="list-style-type: none"> • Ability to manage Inventory 	<p>Understanding of the concept of inventory management and stock keeping</p>	<ul style="list-style-type: none"> • Observes/oversees purchasing, receiving and sale in the optical business. • Reviews vendor's product availability. 	<ul style="list-style-type: none"> • Conscientiousness

Documentation

Description: Ability of the optometrists to document all the procedures, interactions and dispositions done to the patient in either electronic records (EMR) format or the hard copy; and preserve the document for a specific period as per the legal requirements.

Required Tools: Printed stationery of the work up sheet. Pen, color pencils and a computer with basic software e.g., Excel / EMR software.

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Performance Criteria	Indicators		
	Knowledge	Skill	Behavior
<ul style="list-style-type: none"> Ability to record all relevant information pertaining to the patient in a format which is understandable and useable by the optometrist and his/her colleagues 	<ul style="list-style-type: none"> Knowledge of documenting a standard flow of complete comprehensive eye examination, hard copy/ EMR Knowledge of documenting relevant procedures which are followed in optometry sub-specialty such as CL, BV, LVA, Glaucoma evaluation and retinal diagnostic procedures Knowledge of what instrument is used for what purpose and a clear description, drawing or photo is provided for clinical findings. Knowledge of the internationally accepted abbreviations and ICD codes 	<ul style="list-style-type: none"> Documents date & time, patient's name and address, examiner's name. Documents positive and negative history E.g., H/O diabetes, hypertension & IHD Using standard terminology records the following – external examination / SLE / Refraction in detail / IOT/ ortho-optic work up / ophthalmoscopy etc. Documents with a clear description, drawing or photo is for clinical findings. Records brief clear notes on diagnosis / discussion and consultation. Gives clear instructions for the next follow up visit. Provides referral notes to concerned specialist, ocular /medical and urgency of referral with details of tests carried out and provisional diagnosis 	<ul style="list-style-type: none"> Attention to detail of all procedures conducted Conscientiousness

<ul style="list-style-type: none"> • Ability to keep patient records in a readily retrievable format and physically secure 	<ul style="list-style-type: none"> • Basic computer knowledge (Microsoft excel) to retrieve physical copy of file / electronic medical record (EMR) entry. • Knowledge of correct labelling of physical copies with respect to entries in excel. • Cross referencing • Staff understanding and training of filing system. • Knowledge of EMR back up to cloud or external hard drive. 	<ul style="list-style-type: none"> • Maintains permanent & Legible labelling on physical copy • Retrieves data by name/ date of birth (DOB)/ phone no. (EMR & physical copy). 	<ul style="list-style-type: none"> • Same as above
<ul style="list-style-type: none"> • Ability to ensure that access to records are limited to authorized personnel and release only with the consent of the patient 	<ul style="list-style-type: none"> • Knowledge of relevant laws relating to confidentiality and duration of preservation of the medical records of the patient. • Knowledge of online security protocols are followed for cloud based EMR systems 	<ul style="list-style-type: none"> • Secures records, from any physical damage. • Maintains records in accordance with ethical standards and the law, patient names and addresses are not released for use in mailing lists. Anonymity of the patient is maintained when confidential information regarding the patient is discussed with others unless those parties are engaged in the management of the patient or prior consent of the patient is obtained. 	<ul style="list-style-type: none"> • Same as above

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		<ul style="list-style-type: none"> • Maintains EMR back up and stores them safely in cloud/ hard drive • Ensures every patient signs a consent form to state that they have been informed of and have understood the data protection policy 	
<ul style="list-style-type: none"> • Ability to write prescriptions in the appropriate format 	<ul style="list-style-type: none"> • Knowledge of the format in which the prescriptions for spectacles, CL Low vision aids and other therapeutics are to be written. 	<ul style="list-style-type: none"> • Writes the prescriptions for spectacles, CL Low vision aids and other therapeutics as per the accepted formats 	

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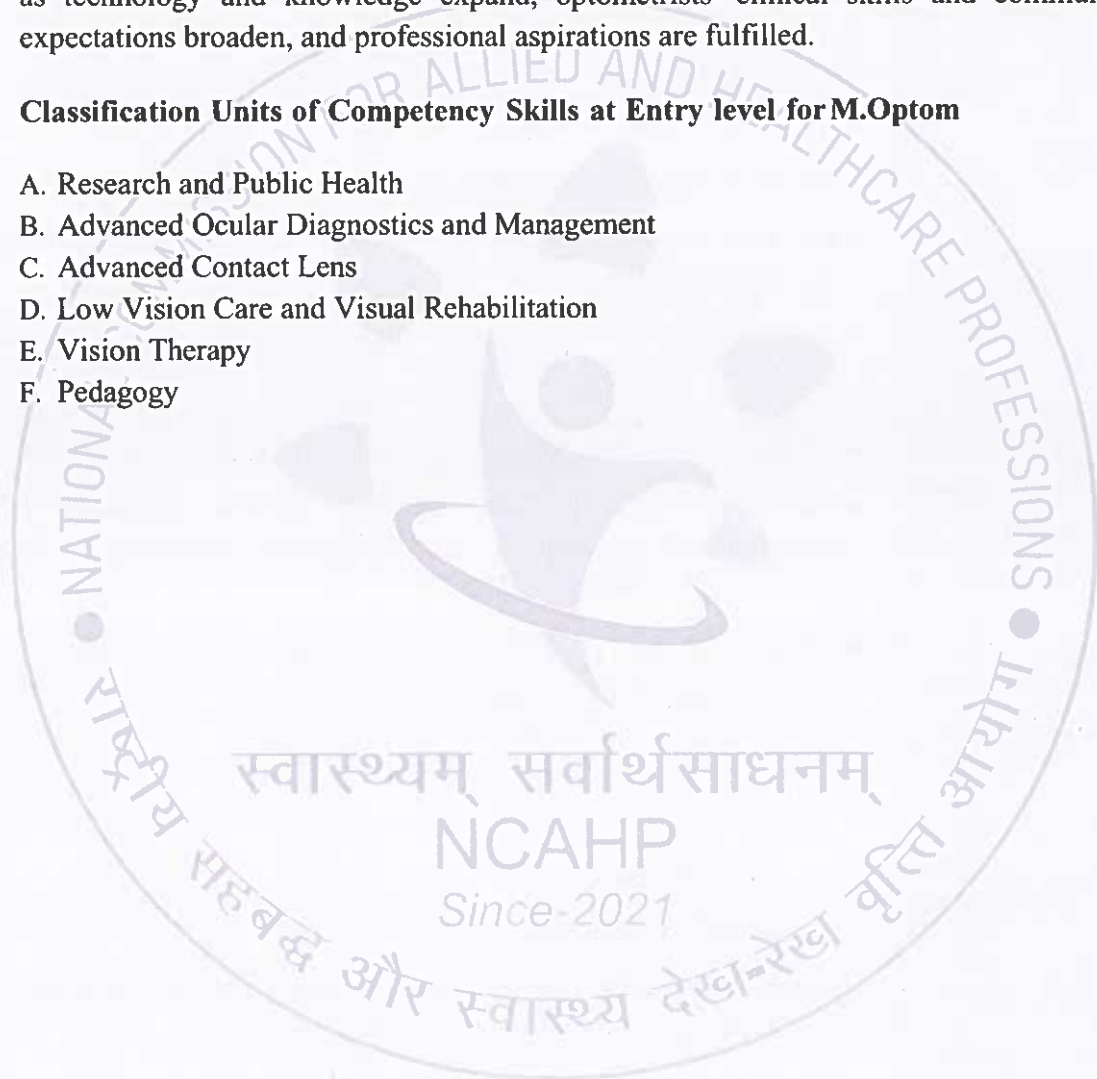
Chapter 5.1: INDIAN MASTERS LEVEL OPTOMETRY COMPETENCY STANDARD (IMLOCS)

Competency Standards for Masters" level into the Profession of Optometry in India

These standards have been developed for the profession and are expected to be altered as technology and knowledge expand, optometrists' clinical skills and community expectations broaden, and professional aspirations are fulfilled.

Classification Units of Competency Skills at Entry level for M.Optom

- A. Research and Public Health
- B. Advanced Ocular Diagnostics and Management
- C. Advanced Contact Lens
- D. Low Vision Care and Visual Rehabilitation
- E. Vision Therapy
- F. Pedagogy



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<p>Research and Public Health</p>	<ul style="list-style-type: none"> ● Ability to do an evidence-based literature review on causes for eye health disorders, and intervention strategies. ● Ability to draft research proposals/grant application. ● Ability to analyse data using statistical and other methods of data analysis. ● Ability to draft research articles (Medical writing) ● Ability to critically evaluate the research material. ● Ability to conceptualize screening and interventional strategies for a given community. ● Ability to plan and execute community eye health programs. ● Ability to collect reliable data, analyse and report the same. ● Ability to develop hypotheses, project trends, and mathematical models for epidemiological studies. ● Ability to innovate and conceptualize cost-effective interventions using technology for eye health services.
<p>Advanced ocular Diagnostics and Management</p>	<ul style="list-style-type: none"> ● Ability to perform clinical decision-making for Ocular abnormalities ● Ability to perform and interpret corneal diagnostics including Topography/Pentacam/Orb scan, Specular microscopy, Pachymetry, Abberometry, AS OCT, UBM ● Ability to perform pre and post Lasik evaluation ● Ability to interpret glaucoma diagnostic reports <ul style="list-style-type: none"> a. OCT b. HRT c. Gonioscopy d. ONH evaluation ● Ability to perform pre and post cataract work up and ocular biometry evaluation and post op follow up management ● Ability to perform anterior segment photography and ophthalmic imaging ● Ability to manage and co-manage therapeutics for anterior segment

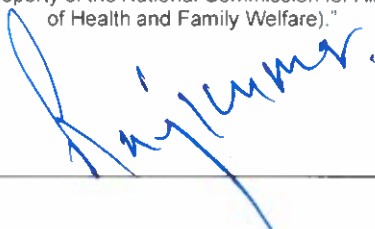
	<ul style="list-style-type: none"> ● Ability to perform electro diagnostic procedures and interpret electro diagnostic reports <ul style="list-style-type: none"> a. ERG b. EOG c. VEP ● Ability to perform stereoscopic fundus photography ● Ability to perform and interpret visual fields ● Ability to use Ocular photography as tool for evidence based clinical decision making and progression analysis ● Ability to perform posterior segment photography ● Ability to manage and co-manage diseases and disorders of posterior segment ● Ability to perform diagnostics and develop management protocol for Ocular surface disorders (Meibography, Lipid layer interferometry, Staining, techniques Lid wiper epitheliopathy and Eye closure assessment) ● Ability to perform diagnostics, develop protocols for control and management of myopia progression <ul style="list-style-type: none"> a. Axial length measure b. Accommodation c. Peripheral refraction
<p>Advanced Contact Lens</p>	<ul style="list-style-type: none"> ● Ability to understand corneal anatomy and physiology and its oxygen need ● Ability to diagnose and manage complications due to contact lenses ● Ability to fit specialized contact lenses. <ul style="list-style-type: none"> a. Keratoconus b. Rose K lenses c. Mini scleral lenses d. Hybrid lenses e. Orthokeratology f. Scleral lenses g. Myopia h. Dry eyes, SJS, Post PK, Post C3R, Post LASIK ectasia ● Ability to fit paediatric contact lenses

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<p>Low Vision Care and Visual Rehabilitation</p>	<ul style="list-style-type: none"> ● Ability to diagnose and manage patients with vision impairment ● Ability to perform specialised diagnostics <ul style="list-style-type: none"> a. Rudimentary vision b. Berkeley visual field test c. Hand disc Perimetry ● Ability to train for eccentric viewing and steady eye techniques ● Ability to diagnose and manage patients with vision impairment ● Ability to perform specialised diagnostics for patients with low vision with multiple disabilities ● Ability to train for eccentric viewing and steady eye techniques ● Ability to rehabilitate patients with VI with vocational counselling and activities of daily living ● Ability to provide Orientation and Mobility training
<p>Vision Therapy</p>	<ul style="list-style-type: none"> ● Ability to diagnose, manage and co-manage binocular vision, strabismic and non-strabismic binocular anomalies ● Ability to manage and co-manage visual perceptual disorders ● Ability to manage amblyopia ● Ability to diagnose and manage neuro-vision and neuro-developmental disorders.
<p>Pedagogy</p>	<ul style="list-style-type: none"> ● Ability to frame learning objectives of a course in alignment with program objectives ● Ability to design learning and assessment modules for the given course ● Ability to impart the instructional module to achieve intended learning objectives ● Ability to choose the form and conduct assessment for the given course ● Ability to reflect on the academic processes by analysing learner's feedback and program outcomes


RESEARCH AND PUBLIC HEALTH

Description: The course will aim to develop competencies to become effective researcher. This course will provide an opportunity for students to advance their understanding of research, ethical principles, research process and dissemination of results. Students will gain competence in planning, conducting, evaluating, and presenting a research project.

Required tools: Infrastructure needed to conduct research, Institutional ethics committee, library equipped with scientific journals in optometry and vision sciences, computers with required software (e.g., for statistical analysis, plagiarism tools), Number of clinical instruments as per requirement of individual research study.

Performance criteria	Indicators		
	Knowledge	Skill	Behaviour
Ability to draft research proposals/grant application and conduct research.	<ul style="list-style-type: none"> Understanding of basic concepts of research, ethics and integrity, study types, and its process Knowledge of different research study designs Knowledge of sources of data for identification of problem Knowledge of various journal databases and indexing. Knowledge of finding and appraising relevant literature 	<ul style="list-style-type: none"> Identifies a problem and formulates a research question/ problem statement. Ability to perform literature review. Writes aim, objectives, and hypothesis Designs study methodology and research instruments Ability to do Pilot study to check feasibility of research methods Obtains ethical clearance for the research study Demonstrates Data collection, data entry and data storage 	<ul style="list-style-type: none"> Curiosity Logical thinking Analytical skills Organizational & communication skills Time management

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	<ul style="list-style-type: none"> • Formulation of research question and hypothesis • Knowledge of Methods and tools of data collection, methods of documentation of research process • Knowledge of ethical aspects in research • Knowledge of various grant agencies in healthcare research 		
Ability to analyse data using statistical and other methods of data analysis.	<ul style="list-style-type: none"> • Knowledge of descriptive and inferential statistical methods • Knowledge of sources of errors • Knowledge of methods of analysis of qualitative data • Knowledge of various software used in data analysis • Knowledge of result reporting formats 	<ul style="list-style-type: none"> • Tests hypothesis by using various statistical / qualitative analysis methods • Demonstrates ability of using appropriate software for data analysis and presentation of results 	<ul style="list-style-type: none"> • Analytical skills • Presentation skills

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<p>Ability to communicate research findings (Academic writing)</p>	<ul style="list-style-type: none"> • Knowledge of various channels for dissemination of results • Knowledge of essential components of communication of scientific study • Structure of academic writing for scientific journals • Understanding of IPR and plagiarism 	<ul style="list-style-type: none"> • Writes a manuscript • Presentation of research in conference/ scientific forum/ peer groups 	<ul style="list-style-type: none"> • Communication and presentation skills
<p>Ability to critically evaluate the research material</p>	<ul style="list-style-type: none"> • Knowledge of principles and process of evidence-based practice • Knowledge of critical appraisal tools • Knowledge of methods of literature review • Knowledge of methods of meta-analysis of studies 	<ul style="list-style-type: none"> • Ability to do literature review for the chosen topic 	<ul style="list-style-type: none"> • Analytical skills • Logical reasoning • Critical thinking

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<p>Ability to differentiate cost-effective interventions and utilizing technology for eye health services</p>	<ul style="list-style-type: none"> • Knowledge of current trends of technological innovations in eye care • Artificial intelligence and other technological developments in eye care • Understanding of steps of the innovation process. 	<ul style="list-style-type: none"> • Demonstrates ability to find problems and provide solutions at least at ideation stage 	<ul style="list-style-type: none"> • Curiosity • Innovation • Design thinking
<p>Ability to implement delivery models for Community eye health programs</p>	<ul style="list-style-type: none"> • Understanding of various models of service delivery for all leading causes of vision impairment. 	<ul style="list-style-type: none"> • Ability to do a situation analysis of population type and need to develop protocol • Ability to read and access recent expert committee guidelines issues by global opinion leaders and authorities for the given situation. 	<ul style="list-style-type: none"> • Ability to confidently implement the training and smooth functioning go the developed protocol.
<p>Ability to implement Epidemiological Surveys for eye health as well as related systemic conditions</p>	<ul style="list-style-type: none"> • Understanding of rapid assessment of avoidable blindness studies. 	<ul style="list-style-type: none"> • Ability to do a situation analysis of population type and need to develop suitable survey method / protocol. 	<ul style="list-style-type: none"> • Ability to train a team for data collection, coalition and finally analysis and reporting

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	<ul style="list-style-type: none"> • Understanding of regional and national epidemiological studies and data in existing domain • Understanding of sampling frame and sample size calculation for epidemiological studies. 		
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ADVANCED OCULAR DIAGNOSTICS AND MANAGEMENT

Description: Ability of the optometrist to elicit appropriate clinical history, assess the anterior and posterior segment for their structure, health, and functional ability, perform tests and procedures appropriate to the patient's condition and abilities, critically appraise, evaluate, make clinical decisions, manage/co-manage, counsel, prescribe and/or refer them to appropriate health care professionals/rehabilitation professionals.

Required instruments and tools:

Must Haves		Desirables
<ul style="list-style-type: none"> • Refraction unit • Keratometer • Slit lamp bio-microscope. • Applanation tonometer • Non-contact tonometer • Non-mydratic fundus camera • Brightness acuity tester • Colour vision • Amsler chart 	<ul style="list-style-type: none"> • Perimeter • Schirmer's strips • Fluorescein strips • Rose Bengal stain • Sterile water vials • Syringe • 26-gauge needle • Pachymeter • Gonioscope • Optical coherence tomography • A-Scan • Ultrasound bio microscopy 	<ul style="list-style-type: none"> • Topography/Pentacam/Orbscan • Specular microscope • Aberrometer • Fundus camera • AS OCT • Electroretinogram (ERG) • Visually evoked potential (VEP)

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Performance Criteria	Indicators		
	Knowledge	Skill	Behaviour
1. Ability to obtain relevant history	<ul style="list-style-type: none"> Understanding the need to gather adequate information from the patient and from their previous records. 	<ul style="list-style-type: none"> Recognise and verify the situations where relevant information is incomplete, inaccurate, or biased Collect, Integrate, and interpret information from clinical tests performed by other professionals. 	<ul style="list-style-type: none"> Establish eye contact, rapport and remain an active listener.
2. Ability to assess the eye and ocular adnexal regions	<ul style="list-style-type: none"> Extensive knowledge on the normal and abnormal structure, health and functional ability of the eye and its adnexal regions. Extensive knowledge on the use of various instruments or techniques such as, but not limited to. Slit lamp bio microscopy. Direct ophthalmoscopy 	<ul style="list-style-type: none"> Should assess and evaluate the eyelids, lacrimal gland, tear film conjunctiva, cornea, anterior segment, lens, posterior segment, ocular surface, and skin lesions near the eye. 	<ul style="list-style-type: none"> Be proficient, safe, and accurate with the use of equipment and in the performance of techniques. Provide clear explanation of the purpose of various tests, procedures and diagnostic pharmaceuticals used

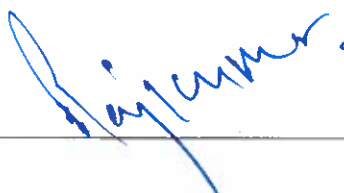
	<ul style="list-style-type: none"> • Indirect ophthalmoscopy • Colour vision • Amsler testing • In-depth knowledge in interpreting the results of the various tests and manage or refer the patients appropriately. 	<ul style="list-style-type: none"> • Should be competent in evaluating the various structures using slit lamp bio microscopy, direct or indirect ophthalmoscope. • Should use appropriate diagnostic pharmaceuticals for the evaluation. • Demonstrate the ability to manage and /or refer the patients appropriately 	
3. Ability to perform and interpret corneal diagnostics	<ul style="list-style-type: none"> • Extensive knowledge on the instrumentation, and indications of various corneal diagnostics 	<ul style="list-style-type: none"> • Demonstrate proficient use of topographer/Penta cam/orb scan, specular microscope, pachymeter, aberrometer, AS OCT and/or UBM • Demonstrate the ability to perform pre and post Lasik evaluation 	<ul style="list-style-type: none"> • Keep the patient well informed about the various procedures and ensure he/she understood before you do the procedures. • Demonstrate patience while performing various procedures on the patients and explain the findings.

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			<ul style="list-style-type: none">• Ensure whether patient and the attender got their doubts cleared before they leave the clinic
4. Ability to perform and interpret glaucoma diagnostic.	<ul style="list-style-type: none">• Extensive knowledge on the instrumentation, and indications of various glaucoma diagnostics• In-depth knowledge on the normal and abnormal results of various diagnostic testing.	<ul style="list-style-type: none">• Demonstrate adequate ability in performing applanation tonometry.• Demonstrate adequate ability to perform and document the findings of gonioscopy and optic nerve head evaluation• Demonstrate ability to perform various diagnostic testing such as perimetry, OCT, HRT, GDx• Demonstrate the ability to make evidence based clinical decision and analyse the progressions.	<ul style="list-style-type: none">• Communicate proficiently in the patient's preferred language of the pros and cons of the testing.• Patiently clarify the doubts and fear related to the test performed.• Phrase/rephrase questions and answers to facilitate interactive communication and enhance and verify understanding• Ensure whether patient and the attender got their doubts cleared before they are performing the test



<p>5. Ability to perform and interpret ophthalmic photography and imaging</p>	<ul style="list-style-type: none"> • Extensive knowledge on the instrumentation, and indications of various ophthalmic imaging techniques • In-depth knowledge on the effects and adverse effects of the drugs used for imaging. • In-depth knowledge on the normal and abnormal findings of the diagnostic tests 	<ul style="list-style-type: none"> • Demonstrate the ability to take stereo fundus photographs. • Demonstrate the ability to capture the movement of the dye during fundus fluorescein angiography and Indocyanine green angiography. • Demonstrate the ability to perform optical coherence tomography and interpret the results of the study 	<ul style="list-style-type: none"> • Establish patient's identity. • Communicate proficiently in the patient's preferred language of the pros and cons of the testing. • Patiently clarify the doubts and fear related to the test Performed. • Phrase/rephrase questions and answers to facilitate interactive communication and enhance and verify understanding. • Ensure whether patient and the attender got their doubts cleared before they are performing the test
<p>6. Ability to perform and interpret electrodiagnostic testing</p>	<ul style="list-style-type: none"> • Extensive knowledge on the instrumentation, and indications of various electrodiagnostic tests. 	<ul style="list-style-type: none"> • Demonstrate the ability to prepare the patient for electrodiagnostic testing. 	<ul style="list-style-type: none"> • Communicate proficiently in the patient's preferred language of the pros and cons

	<ul style="list-style-type: none"> In-depth knowledge on the normal and abnormal findings of various electrodiagnostic testing 	<ul style="list-style-type: none"> Demonstrate the ability to identify appropriate electrodes and fix them at right places according to the type of testing. Demonstrate the ability to run various electrodiagnostic strategies and interpret the results of the tests 	<ul style="list-style-type: none"> of the testing. Patiently clarify the doubts and fear related to the test performed. Ensure whether patient and the attender got their doubts cleared before they are performing the test
7. Ability to perform diagnostics and develop management protocol for Ocular surface disorders	<ul style="list-style-type: none"> In-depth knowledge on the instrumentation, and indications of various ocular surface diagnostic procedures and techniques. 	<ul style="list-style-type: none"> Demonstrate proficient use of various staining techniques, meibography, lipid layer interferometry. Demonstrate the ability interpret the results of the testing. 	<ul style="list-style-type: none"> Be proficient, safe, and accurate with the use of equipment's and the performance of various techniques. Provide clear explanation of the purpose of various tests, procedures.
8. Ability to perform diagnostics and develop management protocols for control of myopia progression	<ul style="list-style-type: none"> In-depth knowledge on the progression of myopia and the necessity to control it 	<ul style="list-style-type: none"> Demonstrate the ability to perform axial length measurement. 	<ul style="list-style-type: none"> Keep the patient well informed about the progression and the resulting complications of myopia.

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		<ul style="list-style-type: none"> • Demonstrate the ability to measure corneal curvature, accommodation, and peripheral refraction • Demonstrate the ability to interpret the results of the testing. • Demonstrate the ability to manage/co-manage and/or refer the patients appropriately. 	<ul style="list-style-type: none"> • Demonstrate patience while performing various procedures on the patients and while explaining to them about the findings and always seek the full cooperation of the patients. • Ensure whether patient and the attender got their doubts cleared before they leave the clinic
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ADVANCED CONTACT LENS

Description: Ability of the optometrist to elicit relevant history, perform necessary diagnostic tests and ascertain appropriate type of contact lenses. Optometrist should be able to fit and dispense various types of contact lenses, counsel the patients, manage after care and manage / co- manage patients with the other specialists when required.

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Required instruments and tools

Must Haves		Desirables
<ul style="list-style-type: none"> • Torch light • Keratometer • Slit lamp bio-microscope. • Fluorescein strips • Wratten filter • Contact lens trial sets. -Scleral, Orthokeratology, Rose"K 	<ul style="list-style-type: none"> • Disposable multifocal trial lenses (soft) • Area to teach lens insertion and removal. • Mirror • CL solutions, Saline • Hand towels/tissues • Wash Basin • Topographer 	<ul style="list-style-type: none"> • Burton lamp • Infographics and written instruction

Performance criteria	Indicators		
	Knowledge	Skill	Behaviour
Ability to ensure patient safety in contact lens practice	<ul style="list-style-type: none"> • Understanding of various contact lens solutions and their interactions with distinct types of lenses and materials • Awareness of numerous ways of disinfecting contact lens trial sets to make them safe for usage • Understanding of various microbes that may cause issues with lens wear and how to eliminate them 	<ul style="list-style-type: none"> • Demonstrates proper contact lens cleaning and disinfecting steps using various cleaners and even lab cleaners • Makes and follows a disinfecting routine of all trial sets conscientiously 	<ul style="list-style-type: none"> • Prioritize patient's safety

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<p>Ability to assess the suitability of contact lenses as a form of correction for a patient and counsel the patient accordingly</p>	<ul style="list-style-type: none"> • Awareness of how the lifestyle, vocational needs, vision, refraction, comfort, duration of wear, environment affects contact lens wear • Knowledge and understanding about the ocular physiology and systemic diseases and their interaction with contact lens materials/types • Ability to spot risks contraindicated to contact lens wear and knowledge to reduce these risks by taking appropriate actions • In depth knowledge of all contact lens materials and lens. 	<ul style="list-style-type: none"> • Elicits proper history that is relevant for contact lens wear based on the understanding of theory • Assesses ocular integrity and physiology (using slit lamp, Keratometer, vital staining, tear function tests) and correlate them to the history to conclude the type of lens design and material to be prescribed • Counsels the patients regarding probable risk factors, if any and what steps need to be taken to make contact lens wear safe • Recommends right lens using professional expertise 	<ul style="list-style-type: none"> • Be a good listener and ask probing questions without intimidating the patient • Should be polite and understanding yet be confident and assertive when conveying the lens choice • Confident and efficient in performing tests
<p>Ability to select, fit and order the most appropriate rigid gas permeable contact lens (including Rose K lenses) based on patient's</p>	<ul style="list-style-type: none"> • Detailed knowledge of the range of rigid lens materials and designs available • Understanding of all the parameters, range of Base curve, diameter, and power availability of various RGP CL companies that are available 	<ul style="list-style-type: none"> • Makes the appropriate choice of rigid lens parameters – Back vertex power, base curve, total diameter, optic zone diameter, design, material etc. • Assesses the fitting of a rigid lens – Dynamic and static (understands and interprets fluorescein patterns) 	<ul style="list-style-type: none"> • Be empathetic towards any discomfort patient experiences.

<p>refraction, visual requirements, and other findings</p>	<ul style="list-style-type: none"> • Knows how to modify the parameters of various RGP CL to obtain an appropriate fit • Knowledge of how to assess fluorescein pattern and the influence of lids on the RGP fit • Knowledge about RGP lenses used in specialty fitting such as Keratoconus, OrthoK, scleral lenses, mini scleral lenses 	<ul style="list-style-type: none"> • Makes appropriate adjustment in lens parameters for best fit. • Writes an appropriate order for a rigid lens 	
<p>Ability to instruct the patient in Rose K lens handling, how to wear and care for them</p>	<ul style="list-style-type: none"> • Understanding of the rigid lens care systems- Disinfectants, intensive cleaners etc. • Knowledge to instruct the patient on how to insert and remove Rose K CL. • Awareness of the complications in case of a non-compliant patient 	<ul style="list-style-type: none"> • Instructs the patient in the techniques of Rose K lens insertion, removal, and other relevant handling instructions • Instructs a patient on the principles of Rose K lens wear and care including the use of RGP/Rose K lens care products, Do's, and Don'ts • Explain importance of hand hygiene and lens case hygiene 	<ul style="list-style-type: none"> • Be patient while instructing and while the patient is learning how to use CL • Do not intimidate the patient while teaching how to handle the CL. • Be firm and professional while delivering instruction for CL care.
<p>Ability to manage the aftercare of patients wearing rigid lenses</p>	<ul style="list-style-type: none"> • Understanding of rigid lens (rose K) adaptation and aftercare issues and how to manage them • Knowledge of the content and routine of a rigid CL (rose K) aftercare consultation 	<ul style="list-style-type: none"> • Conducts the relevant tests and assessments which are required in a routine rigid lens/rose K aftercare consultation 	<ul style="list-style-type: none"> • Observation skills as you elicit history of patient and complaints if any

		<ul style="list-style-type: none"> • Schedules appropriate timelines for after care • Analyses the care regimen that the patient is following and correlate with what was prescribed • Asks probing questions to patient in terms of how he/she handles and takes care of CL • Requests patient to demonstrate cleaning procedure in front of the practitioner 	
Ability to manage astigmatic patients with contact lenses	<ul style="list-style-type: none"> • Knowledge of the types of astigmatism • Understanding of the designs and materials available in toric contact lenses 	<ul style="list-style-type: none"> • Chooses the appropriate type of CL correction to meet the relevant needs of the patient • Assesses the fit and orientation and makes appropriate adjustments in the final prescription (application of LARS /CAAS rule in toric lenses) 	<ul style="list-style-type: none"> • Explain the need for such a lens and the benefits of the same to patient.
Ability to manage presbyopic patients with contact lenses	<ul style="list-style-type: none"> • Understanding of presbyopia • Knowledge of various modes of correction for presbyopia such as single vision, multifocal lenses 	<ul style="list-style-type: none"> • Explains to the patient diverse options that are available in correcting presbyopia with CLs and explains their benefits to enhance the lifestyle of the patient. 	<ul style="list-style-type: none"> • Active listening, probing, and counselling

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	<ul style="list-style-type: none"> Understanding of ocular dominance and troubleshooting in case patient is dissatisfied with the outcome 	<ul style="list-style-type: none"> Chooses the appropriate type of CL correction to meet the relevant needs of the patient Assesses fit, vision and modifies the prescription/fit if necessary. 	
Ability to prescribe contact lenses in pediatric.	<ul style="list-style-type: none"> Demonstrates an understanding of conditions requiring paediatric contact lenses. –Aphakia, Aniridia; trauma; amblyopia etc Knowledge of materials, parameters, and availability of paediatric lenses Knowledge of fitting, aftercare, and complications of these lenses 	<ul style="list-style-type: none"> Makes appropriate choice of lens parameters –base curve, total diameter, material, tint etc. Accurately assesses the fit of the lens Recommends appropriate after care schedule 	<ul style="list-style-type: none"> Empathetic towards patient during the entire procedure Shows patience and confidence while smoothly manoeuvring through various steps
Ability to select, fit and order the most appropriate speciality contact lens like scleral lens, hybrid lenses and Rose K based on patient's refraction, visual requirements, and other findings	<ul style="list-style-type: none"> Knowledge of various conditions that can be managed by specialty contact lens like sclera's, hybrid, and Rose K Knowledge of materials, parameters, and availability of scleral, hybrid and speciality GP lenses Knowledge of fitting, aftercare, and complications of these lenses 	<ul style="list-style-type: none"> Manage the conditions that require specialty contact lens fitting - Keratoconus, irregular corneas, dry eye, post refractive surgery etc. 	<ul style="list-style-type: none"> Empathetic towards patient during the entire procedure Shows patience and confidence while smoothly manoeuvring through various steps

LOW VISION CARE AND VISUAL REHABILITATION

Description: After completing the course, the student should be able to understand epidemiology of vision impairment, various ocular diseases pathology that lead to vision impairment, clinical and functional visual performance evaluation with internationally accepted standard equipment, magnification, psychosocial consequences of vision impairment, design optical & lighting environment modification for visually impaired, sensory substitution devices, counselling, orientation & mobility training for visually impaired and understand the role of a multidisciplinary team involved in vision impairment & rehabilitative care.

Required instruments and tools

Must Haves		Desirables
<ul style="list-style-type: none"> • Self-illuminated Log MAR chart (ETDRS) for distance • The Berkeley Rudimentary Vision Test • Cardiff Acuity Test • Bailey Iovis word reading chart for nearby. • Minnesota Low vision Read Acuity Chart for reading speed, acuity etc. • Full Aperture trial box and Universal Trial Frame • Vistech VCTS chart / Evans/ Pelli Robson • Low contrast visual acuity chart • Pelli-Robson low contrast letter chart • Hiding Heidi low Contrast Face Test • Berkeley central visual field test (BCFT) • Hand Disc Perimeter 	<ul style="list-style-type: none"> • Brightness Acuity test (BAT) Ophthalmoscope for photostress recovery time • D-15 Farnsworth test • Electronic Low vision devices (CCTV systems) • Non-Optical devices (Writing guide, Reading stands etc.) • Absorptive Filters • Eccentric viewing practise charts • Prisms • Field Expanders • White cane • Braille alphabet Tiles • Software program for Computer usage (JAWS-Job Access WorkStation) • Large Print Books 	<ul style="list-style-type: none"> • Catford drum • Teller Acuity Cards for children VA assessment • Laser Cane • Optical to Tactile Converter • Artificial iris contact lens • Typoscope with fixation point for eccentric viewing training

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Performance Criteria	Indicators		
	Knowledge	Skill	Behaviour
Ability to diagnose and manage patients with vision impairment	<ul style="list-style-type: none"> • Understand how different ocular diseases impact visual functions • Knowledge of aids to manage visual acuity loss, visual field defects, contrast loss, and colour deficiencies. 	<ul style="list-style-type: none"> • Utilise standard instruments to assess visual performance. • Assess visual performance in adults and children with vision impairment. 	<ul style="list-style-type: none"> • Be empathetic. • Be kind and patient. • Consciousness and attention to detail
Ability to perform specialised diagnostics for patients with low vision with multiple disabilities	<ul style="list-style-type: none"> • Management for multiple disabilities. • Knowledge of procedure of speciality tests of visually impaired. 	<ul style="list-style-type: none"> • Ability to perform the Berkeley Rudimentary Vision Test, MNREAD test, Vistech VCTS test, BCFT, BAT etc. 	<ul style="list-style-type: none"> • During every step, demonstrate empathy for the patient.
Ability to train for eccentric viewing and steady eye techniques	<ul style="list-style-type: none"> • Knowledge of prism relocation therapy, Eccentric viewing. 	<ul style="list-style-type: none"> • Ability to determine preferred retinal locus • Ability to provide eccentric training. 	<ul style="list-style-type: none"> • Be calm • Be empathetic.

<p>Ability to suggest environment modification and absorptive filters for visually impaired</p>	<ul style="list-style-type: none"> • Knowledge of lighting and layouts to avoid obstacles 	<ul style="list-style-type: none"> • Ability to design optical & lighting systems for visually impaired 	<ul style="list-style-type: none"> • Consciousness and attention to detail
<p>Ability to rehabilitate patients with VI with vocational counselling and activities of daily living</p>	<ul style="list-style-type: none"> • Knowledge of orientation & mobility • Knowledge of benefits for visually challenged. 	<ul style="list-style-type: none"> • Ability to provide orientation and mobility training. • Ability to provide counselling. • Ability to provide daily living activities training specific to their quality of life 	<ul style="list-style-type: none"> • Be nonjudgmental.



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VISION THERAPY

Description: The course will aim to help expand the student's knowledge base in all aspects of behavioural vision care and optometric vision therapy. Advanced competencies are expected to be achieved in understanding the principles and procedures used in diagnosing and treating with optometric vision therapies, behavioural vision care, perceptual therapies, and neuro vision rehabilitation therapies.

Required instruments and tools

Must Haves		Desirables
<p>All the equipment mentioned in IELOCS for binocular vision</p> <p>Advanced vision therapy kit comprising of</p> <ul style="list-style-type: none"> ● WFDT light torch white ● Dual polachrome illuminated trainer. ● Variable prismatic trainer (attaches to Bernelloscope) ● Mirror stereoscope in office set ● TV kit large ● Life saver cards set. ● Fixed demand tranaglyph kits ● Variable demand tranaglyph kits ● Vectograms ● Eccentric circle card set. ● Aperture rule kit ● Tranaglyph V/H ● Barrell convergence card set. ● Bernell O Scope with case ● Accommodative flippers (+/- 0.50, 0.75, 1.00, 1.25, 1.50, 1.75, 2.00, 2.50) 	<ul style="list-style-type: none"> ● Single Brock string ● Vergence facility stick Saccadic stick ● Saccadic card set. ● Haart chart ● Rock card set. ● DEM complete test set ● Peripheral charts ● Polarized bar readers ● Red/green bar readers ● Prism goggles adult 4 and 8D ● Floor rotator ● Walking rail ● Balance board ● TVPS 4 ● Workbooks for perceptual therapies ● Parquetry blocks ● Marsden ball ● Large magnetic white board ● Loose uncut lenses of different power 	<ul style="list-style-type: none"> ● DTVP 4 ● Beery Buktenica VMI ● Computer based software. ● MIT2 ● VR based software. ● Readalyzer ● Visagraph ● Red – red rock

Performance criteria	Indicators		
	Knowledge	Skill	Behaviour
Ability to understand principles used in therapy techniques and procedures.	<ul style="list-style-type: none"> ● In depth knowledge of the principles and procedures of vision therapy procedures ● The epidemiological and demographic characteristics of binocular vision disorders ● The characteristic history, signs, and symptoms for each clinical condition ● Knowledge of binocular vision conditions, including specific test protocols and their interpretation ● The differential diagnosis for binocular vision conditions <p>Specific treatment and management of each clinical condition including:</p> <ul style="list-style-type: none"> ● Prognostic indicators ● Knowledge of the treatment options, duration, and frequency of treatment ● Treatment philosophy and goals ● Knowledge of lens treatment and therapy procedures including rationale for treatment 	<ul style="list-style-type: none"> ● Assessment of binocular vision conditions and specific test protocols. ● Procedures involved in the treatment of anomalies of binocular vision. ● Training the patient and or/the caregiver in therapy procedures for home therapies. ● Explaining the problem/s, treatment modalities and prognosis to the patient and or/the caregiver. 	<ul style="list-style-type: none"> ● Able to establish eye contact, and rapport with the patient. Allows the patient/care giver to speak initially and remain an active listener. ● Should have a good observation and analytical, capacity to notice and interpret small changes in the movements of the eyes and body while performing the tests. ● He/she must have patience to carry out the tests and repeat them if required. Should be able to explain and clarify the questions confidently and adequately. ● The examiner should be confident, adaptable, and culturally sensitive towards the patients. ● Should be empathetic towards the patient and understand their difficulty if they are not able to perform any procedure adequately.

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	<ul style="list-style-type: none"> ● Ergonomics and visual hygiene ● Outcomes to determine successful completion of treatment. ● Frequency of follow-up care and patient instructions ● Referral criteria (medical, neurological, educational, etc.) 		
Ability to understand diagnose and provide optometric vision therapies for various clinical conditions.	<p>In depth knowledge of the causes, treatment options and prognosis for the following:</p> <p>A. Strabismus and Amblyopia:</p> <p>i. Amblyopia – all the types</p> <p>ii. Strabismus – all the types</p> <p>iii. Sensory adaptations</p> <p>B. Knowledge of visual and neurological growth and development</p> <p>C. Knowledge of perception and information processing in the following:</p> <p>i. Neurological / Psychological</p>	<ol style="list-style-type: none"> 1. Diagnostic and various therapeutic modalities in treatment of strabismus and amblyopia. 2. Performing all the diagnostic tests involved in assessment of visual information processing 3. Performing all the tests assessing visual motor coordination, bilateral integration, laterality, and directionality 4. Assessment and evaluation of population with special needs. 5. Assessment and evaluation of patients with brain injuries. 	<ol style="list-style-type: none"> 1. Determine the level at which patient performs easily. 2. Be aware of the frustration levels of the patient. 3. Use positive reinforcements with the patient while performing therapies. 4. Maintain an effective training level. 5. Set realistic therapy objectives and maintain flexibility with these objectives and end point

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	<p>ii. Intercessory and Sensorimotor Integration</p> <p>Understanding and knowledge of performance indicators like:</p> <p>a. Laterality and directionality</p> <p>b. Visual requirements for academic success</p> <p>c. Bilaterality</p> <p>d. Gross and fine motor ability</p> <p>e. Form perception/visual analysis</p> <p>f. Spatial awareness</p> <p>g. Visualization</p> <p>h. Visual memory</p> <p>i. Visual sequential memory</p> <p>j. Form constancy</p> <p>k. Visual speed and visual span</p> <p>l. Visual sequencing</p> <p>D. Knowledge and understanding of refractive conditions and visual skills:</p> <p>a. Refractive Conditions</p> <p>b. Ocular Motor</p>	<p>6. Formulating a plan and to treat conditions like:</p> <ul style="list-style-type: none"> • Strabismus • Amblyopia • Visual perceptual disorders • Visual motor disorders • Disorders emanating from neural injuries and insult. • Learning related vision disorders • Oculo – Musculo – skeletal disorders like computer vision syndrome • Sports injuries and visual performance disorders 	
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	<p>Function like:</p> <ul style="list-style-type: none">i. Eye movements and readingii. Pursuit dysfunctionsiii. Nystagmusiv. Saccadic Dysfunctionsc. Accommodationd. Fusion in Non-Strabismic ConditionsE. Understanding of causations, therapeutic procedures, and prognosis in special clinical conditions like:<ul style="list-style-type: none">1. Acquired brain injury (traumatic brain injury {TBI} and stroke)2. Developmental disabilities (Down Syndrome, Developmental delay, etc.)3. Visually induced balance disorders4. Motor disabilities (Cerebral Palsy, ataxia, etc.)5. Behavioural disorders6. autism spectrum disorder7. ADD / ADHD	<p><i>Raj Kumar</i></p>	
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	<p>8. Dyslexia and specific reading disabilities</p> <p>9. Learning disabilities</p> <p>10. Computer vision syndrome</p>		
<p>Ability to understand, define and explain several vision therapy concepts</p>	<p>Complete knowledge and understanding of the following concepts and feedback mechanisms used in optometric vision therapy.</p> <p>a. Peripheral awareness: focal / ambient roles.</p> <p>b. Significant findings which are good or poor prognostic indicators of vision therapy and lens application</p> <p>c. Behavioural lens application</p> <p>d. Yoked prism rationale for treatment and application</p> <p>e. The relationship between the visual and vestibular systems</p> <p>f. Concepts of SILO/SOLI</p> <p>g. Visual stress and its impact on the visual system</p> <p>h. Role of posture in vision development, comfort, and performance</p> <p>i. Relationship of speech-auditory to vision</p>	<p>1. Demonstration of all feedback mechanisms to the patient</p> <p>2. Making the patients understand where they are going wrong in performing the tasks while</p> <p>3. Performing the feedback tests.</p> <p>4. Helping the patient to rectify the performance errors and ultimately achieving the desired goals and objectives.</p> <p>5. Supporting the patient by explaining to him the purpose and principles of optometric vision therapies.</p>	<p>1. Should be patient and not be in a hurry to achieve results.</p> <p>2. Be empathetic towards the patient and encourage the patient if he is unable to do any procedure.</p> <p>3. Maintain a good communication level with the patient and the attendant.</p> <p>4. Should be confident in everything.</p>

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	<p>j. How television, reading, video gaming might, restricted movement, computer work, nutrition, etc., impact vision?</p> <p>k. Perceptual Style, e.g., spatial/temporal, central/peripheral</p>	<p>6. Getting the patients to understand that the equipment is only to provide targets and quantification tools, whereas the changes happen within the visual and neurological system of the patient.</p>	
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PEDAGOGY

Description: The course will aim to develop competencies to become effective teacher/instructor in optometry program by imparting knowledge and skills of health professions education. The main objective is to develop the teaching and assessment capabilities of the candidates. Candidates are expected to possess and exhibit cognitive abilities, which include comprehension, analysis, evaluation, understanding the structure of arguments, deductive and inductive reasoning. The candidates are also expected to have a general awareness about teaching and learning processes in higher education system, with focus on medical and health professional education.

Required tools: Classroom/ clinical setup for teaching, course curriculum for experimentation.

Performance criteria	Indicators		
	Knowledge	Skill	Behavior
Ability to frame learning objectives of a course in alignment with program objectives.	<ul style="list-style-type: none"> • Has basic knowledge of learning taxonomy, SMART objectives? • Knowledge of steps to frame the learning objectives. • Knowledge of various types of curricula 	<ul style="list-style-type: none"> • Demonstrate the ability to frame learning objectives for the course/program. • Aligns the course objectives with the program objectives 	<ul style="list-style-type: none"> • Awareness about roles and responsibilities of optometrist in general and speciality optometry practice
Ability to design learning and assessment modules for the given course.	<ul style="list-style-type: none"> • Knowledge of principles of adult learning • Knowledge of various components of instructional design, models, and strategies, 	<ul style="list-style-type: none"> • Proficiency in learner analysis • Designs an instructional module for given learning objective. • Finds resources and develops study material for a given module. 	<ul style="list-style-type: none"> • Learner centric approach • Communication and teamwork • Organisational skills • Analytical thinking

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	<ul style="list-style-type: none"> • Knowledge of Various teaching-learning and assessment methods • Familiarity with cognitive and developmental psychology 	<ul style="list-style-type: none"> • Defines measurable learning outcomes 	
Ability to impart the instructional module to achieve learning objectives.	<ul style="list-style-type: none"> • (pre-requisite) In depth knowledge of the subject assigned to teach. • Understanding of different types of learners and learning environment and factors that contribute to learning. • Knowledge of Various teaching-learning methods • Use of technology in delivery of modules • Knowledge of bed side/ clinical teaching methods • Knowledge of evidence-based teaching. 	<ul style="list-style-type: none"> • Demonstrates strong communication skills. • Implements various teaching assignments using appropriate technological solutions. • Ability to conduct demonstration of various lab experiments / clinical tests. • Demonstrates ability of evidence-based teaching 	<ul style="list-style-type: none"> • Critical thinking and problem-solving ability. • Collaborative working in team • Care and inclusiveness • Flexibility and adaptability in different learning environments • Cultural sensitivity • Role model behaviour

Raj Kumar

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Arshma

<p>Ability to choose the form and conduct assessment for the given course.</p>	<ul style="list-style-type: none"> • Knowledge of summative and formative assessments • Knowledge of various assessment tools • Understanding of performance criteria • Knowledge of assessment reports and feedback 	<ul style="list-style-type: none"> • Analytical skills to judge the performance against given criteria. • Ability to communicate with the students during and after the assessment. • Demonstrates reporting of assessment. • Gives constructive feedback to students explaining outcomes of assessment. 	<ul style="list-style-type: none"> • Unbiased / neutral behaviour • Analytical skills • Flexible approach of communication, appropriate for pre assessment, during assessment and post assessment sessions
<p>Ability to reflect on the academic processes by analysing learner's feedback and program outcomes.</p>	<ul style="list-style-type: none"> • Knowledge of different models of program evaluation • Knowledge of different models of feedback • Knowledge of channels/ tools of data collection • Knows basis statistics to draw results from data. • Understanding of various delivery channels/ tools to give feedback / reports. 	<ul style="list-style-type: none"> • Designs a student's feedback questionnaire. • Performs statistical Analysis of data collected. • Generates a report for effectiveness of given course 	<ul style="list-style-type: none"> • Constructive and collaborative approach • Curiosity • Life-long learning skills

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Chapter 6

Job description

Chapter 6: Job description

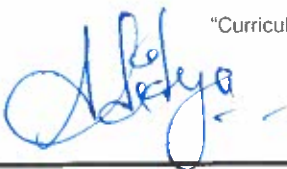
Job Title: Optometrist, Assistant Manager Professional Services, Tutor/Clinical Instructor, Scientist-B

Job Purpose: Primary Eye care practitioner: Diagnose eye ailments by performing a comprehensive eye examination. Comprehensive eye examination will include:

- a. Detailed history (ocular and general)
- b. Collecting and maintaining all demographic data of patient (Name, age, occupation, address)
- c. Vision check
- d. Refraction (objective, subjective)
- e. Binocular balancing
- f. Ocular motility tests
- g. Slit lamp examination
- h. Intra-ocular pressure check
- i. Use diagnostic medications namely, mydriatics and cycloplegics (in indicated patients only)
- j. Fundus examination
- k. Prescribing spectacles/Contact lenses/low vision devices wherever required
- l. Refer or co-manage patient wherever appropriate
- m. Perform all diagnostic tests, treat certain eye ailments that fall within their scope of practice, prescribe spectacles, contact lenses, low vision aids.
- n. Manage primary and secondary health care centres independently

Accountable to: Self-employed, report to senior optometrist in case of institutional set up, report to medical officer in case of PHC or CHC. If employed in Industry, will report to department in charge/CEO of the industry.

Qualification: Refer to table



Job Title: Consultant Optometrist, Manager Professional Services, Assistant Professor, Scientist-C

Job Purpose:

- a. Academic: Teaching optometry subjects to undergraduate level
- b. Research: Conducting independent clinical research studies
- c. Clinical instructor to undergraduates
- d. Private practice or primary eye care practitioner: Same as Level 10. In addition dispense speciality contact lenses, perform vision therapy, and set up speciality clinics.
- e. Industry: Professional services, training for staff and practitioners.
- f. Public health officer

Accountable to: Self-employed, report to senior optometrist in case of institutional set up, report to medical officer in case of PHC /CHC/DH. If employed in Industry, will report to department in charge/CEO of the industry. In academic settings will report to the principal.

Qualification: Refer to table

Job Title: Consultant Optometrist (Senior Scale)/Superintendent Optometrist, Assistant Professor (Senior Scale), Scientist-D

Job Purpose:

- a. Academic: Teaching optometry subjects to undergraduate level and post graduates level
- b. Research: Conducting independent clinical research studies and also be a guide to undergraduate postgraduate projects.
- c. Clinical instructor to both undergraduate and post graduates
- d. Private practice. Independently run clinics in institutions. Provide training to undergraduate and postgraduates in institutions.
- e. Industry: Head of professional services
- f. Public health project manger

Accountable to: Self-employed, report to senior optometrist in case of institutional set up, public health report to medical superintendent. If employed in Industry, will report to CEO of the industry. In academic settings will report to Dean of the institute.

Qualification: Refer to table

Job Title: Senior Consultant Optometrist, Associate Director Professional Services (country), Associate Professor, Scientist-E

Job Purpose:

- a. Academic: Teaching optometry subjects to undergraduate level and post graduates level
- b. Research: Conducting independent clinical research studies. Guide undergraduate and post graduates in their research projects. Setting up of independent research labs or clinical trials.
- c. Clinical instructor to both undergraduate and post graduates
- d. Private practice or primary eye care practitioner:
- e. Industry: Associate Director- Country level
- f. Incharge of public health projects.

Accountable to: Self-employed, report to medical director or chair in case of institutional set up, report to medical superintendent in public sector. If employed in Industry, will report to CEO of the industry. Academic: report to Dean.

Qualification: Refer to table

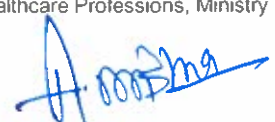
Job Title: Chief Optometrist, Associate Director Professional Services (Group of countries), Associate Professor-Senior Scale, Scientist-F

Job Purpose:

- a. Academic: Teaching optometry subjects to undergraduate level and post graduates level
- b. Research: Conducting independent clinical research studies. Guide undergraduate and post graduates in their research projects. Setting up of independent research labs or clinical trials.
- c. Clinical instructor to both undergraduate and post graduates
- d. Private practice or primary eye care practitioner:
- e. Industry: Associate Director- Group of Countries
- f. Incharge of public health projects.

Accountable to: Self-employed, report to medical director or chair in case of institutional set up, report to medical superintendent in public sector. If employed in Industry, will report to CEO of the industry. Academic: report to Dean.

Job Title: Head of Optometry, Director Professional Services (Country or Group of countries), Professor/Principal, Scientist-G/Research Head



Job Purpose:

- a. Academic: In charge of running graduate and postgraduate course. Teaching optometry subjects to undergraduate level and post graduates level
- b. Research: Conducting independent clinical research studies. Guide undergraduate and post graduates in their research projects. Setting up of independent research labs or clinical trials.
- c. Clinical instructor to both undergraduate and post graduates
- d. Private practice or primary eye care practitioner: level 6 and above
- e. Industry: Director Professional Services (Country or Group of countries),
- f. Associate Director: public health projects.

Accountable to: Self-employed, report to medical director or in case of institutional set up, report to medical superintendent in public sector. If employed in Industry, will report to CEO of the industry. Academic: report to Dean.

Qualification: Refer to table

Job Title: Director-Optometry, Vice President Professional Services, Principal/Dean, Additional Director General

Job Purpose:

- a. Academic: Principal of graduate and post graduate courses. Dean of college Teaching optometry subjects to undergraduate level and post graduates level
- b. Research: Conducting independent clinical research studies. Guide undergraduate and post graduates in their research projects. Setting up of independent research labs or clinical trials.
- c. Clinical instructor to both undergraduate and post graduates
- d. Private practice or primary eye care practitioner: level 6 and above
- e. Industry: Vice President Professional Services
- f. Director: public health projects.

Accountable to: Self-employed, report to medical director or in case of institutional set up, Public sector: report to director. If employed in Industry, will report to CEO of the industry. Academic: report to Dean/Director of the Institute.

Qualification: Refer to table

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Minimum Standard Requirement (MSR)

Bachelor in Optometry program

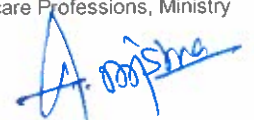
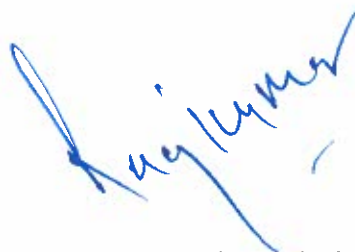
All existing OPTOMETRY colleges/ institute or A new Optometry college will impart Optometry education is suggested the following conditions are fulfilled:-

- 1) Infrastructural, Functional & Equipment and human resource Requirements

The establishment of an Optometry college – No person shall establish a Optometry college/institute except after obtaining prior permission from the National commission (NCAHP). Optometry education prepares a person for independent practice and involves extensive clinical training in almost every speciality & super speciality of ocular health care.

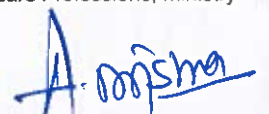
The following organizations shall be eligible to apply for permission to set up a Optometry college, namely: -

1. A State Government/Union territory;
2. A University and Deemed to be University,
3. An autonomous body promoted by Central and State Government by or under a Statute for the purpose of medical education;
4. A society registered under the Societies Registration Act, 1860 (21 of 1860) or corresponding Acts in States; or
5. A public religious or charitable trust registered under the Trust Act, 1882 (2 of 1882) or the WAKFS Act, 1954 (29 of 1954).
6. Companies registered under Company Act may also be allowed to open Optometry colleges.



2) LAND AND BUILDING –

- i. If the college is in the premises of NMC permitted/ recognized medical college, no separate land is required. Existing norms of land for medical college will suffice. Besides that the constructed area/Building norms for Optometry College must be fulfilled as per the requirement mentioned below. In all other cases, the applicant must provide the land details on which the institution will be established for providing Optometry education. It should be in the name of society/ Trust/company applying for the same (sale deed/lease/gift deed etc.).
- ii. That the applicant Institution / Trust should have an independent building for Optometry College and facilities for clinical training as per the curriculum as prescribed by the commission from time to time.
- iii. Such a building should be constructed in such a way that there is adequate parking space and recreational area or open space for students as prescribed by the commission.
- iv. Such a building should have adequate space and should have out-patient Optometry department, various laboratories as needed, office space, class rooms, hostel and other ancillary facilities. Optometry OPD and the college can be placed in different buildings within 50 KM (or as per the NCAHP regulations) distance in the same state of India.
- v. Minimum exclusive built up area for such a college should be 26675 sq.ft for an intake of 30 students per batch and 35750sq.ft for the intake of 60 students per batch.
- vi. Building should be barrier free accessible to persons with disability and as per NBCI guidelines (National Building Code of India).
- vii. Building must be recorded on the appellate institute name or if the land is under lease agreement, it must be for at least 10 years
- viii. Building must have requisite clearances from the respective civic and administrative authorities" like - Fire NOC, structural stability certificate, land use certificates etc.



- ix. Building must have CCTV camera for CCTV surveillance for every area of common use as can be prescribed.
- x. Biometric facility for students and staff, faculty attendance record/documentation

3) Optometry Departments

A well-equipped OPD facility in Optometry department with instruments of all specialties like Contact Lenses clinic, Low Vision clinic, Binocular vision/Vision Therapy clinic, Ocularist Myopia clinic, Sports vision clinic etc should be available at the college premises. A student/ patient ratio of 1:5 should be maintained. That means a hospital with 100 OPD can have a maximum intake of 20 students per year. In addition to the own Optometry OPD in the college building (in case of the existing institutions) if required, the College can get attachment (through signed MOUs) to maximum 5 Optometry departments/ OPDs in various hospitals with minimum 50 patients OPD workload per day. An out-patient Optometry department at the tie-up facility cannot be considered as an independent Optometry OPD/ unit of the college. Besides the Optometry OPD at the campus, the institute should also start a community / extension centre in nearby rural /semi urban area.

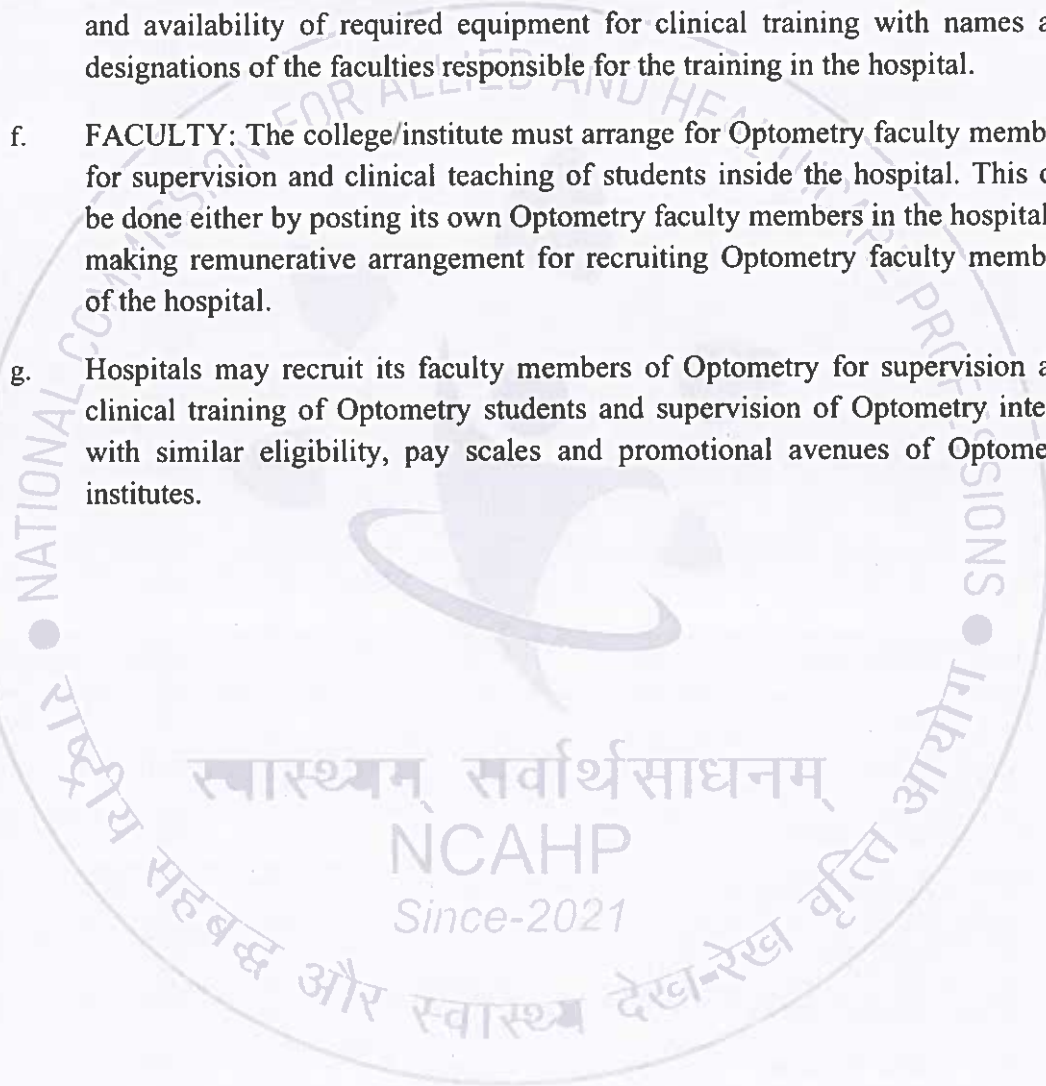
4) HOSPITAL / HOSPITAL ATTACHMENT –

If the college is in the premises of MCI/NMC permitted/recognized Medical College as constituent college, then, there is no requirement for attachment of any other hospital.

- a. In all other cases Proof of availability of own/attached hospital (Government/Private) for clinical training of 30 students shall be furnished (student: OPD ratio of 1:5). The hospital must be within 20 km radius of the College. College must provide mandatory bus service to the students if the hospital is located more than 1 km away from the College. Within 5 years of application of these Rules, the colleges must have Own Prescribed Hospital in the college Premises.
- b. College can be affiliated to maximum five (05) hospitals having indoor and outdoor facility in the above mentioned specialty clinics.



- c. Tie up hospitals cannot get attached to more than two colleges. If the affiliated hospital is attached with two colleges, the OPD strength must be adequately divided amongst the colleges as per the prescribed student: OPD ratio.
- d. The affiliated hospital shall provide information regarding any MOU with other colleges, if any & MOU should be for at least five years.
- e. The MOU should mention the available clinical specialties, patient loads, and availability of required equipment for clinical training with names and designations of the faculties responsible for the training in the hospital.
- f. FACULTY: The college/institute must arrange for Optometry faculty members for supervision and clinical teaching of students inside the hospital. This can be done either by posting its own Optometry faculty members in the hospital or making remunerative arrangement for recruiting Optometry faculty members of the hospital.
- g. Hospitals may recruit its faculty members of Optometry for supervision and clinical training of Optometry students and supervision of Optometry interns with similar eligibility, pay scales and promotional avenues of Optometry institutes.



Raj Kumar

Alfalfa

A. Roshni

5) Space allotment for an annual intake of 60 students of Bachelors in Optometry

Infrastructure requirement for the college

S.No	Details	Total number required	Area required per student in Sq.ft	For 30 students	For 60 students
1	Classrooms	4+1=5	10	1500	3000
2	Optics Lab	1	20	600	1200
3	Biochemistry lab	1	20	600	1200
4	Anatomy lab	1	20	600	1200
5	Clinical labs	2	20	1200	2400
6	Library	1	30	900	1800
7	Common room for girls	1	10	300	600
8	Common room for boys	1	10	300	600
9	Auditorium	1	-	7500	7500
10	Principal room	1	-	500	500
11	Admin room	1	-	500	500
12	Faculty room	1	-	1000	2000
13	Guest faculty room	1	-	500	500
14	Waiting/Lounge area	1	-	500	500
15	Toilet for girls	1	-	500	1000
16	Toilet for boys	1	-	500	1000
17	ECR room	1	-	350	350
18	Store room	1	-	250	500
19	Pantry	1	-	150	150
			Total	18250	26500

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Infrastructure requirement for Optometry Clinic

S.No	Details	Total number required	Area required in Sq.ft
1	Contact lens clinic	1	500
2	LVA clinic	1	500
3	BV/VT clinic	1	500
4	Ocularistry	1	500
5	Myopia Clinic	1	500
6	Sports vision clinic	1	500
7	Reception area	1	500
8	Patient waiting area	1	1500
9	Toilet for Women	1	500
10	Toilet for Men	1	500
		Total	6000

- Total area required for Optometry college for 30 intake is 18250 + 6000 + Plinth 10% = 26675 Sq.ft
- Total area required for Optometry clinics for 60 intake is 26500 + 6000 + Plinth 10% = 35750 Sq.ft

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Chapter 6.1: Minimum Infrastructure Recommendation or MSR for Optometry College for the batch of 30 students

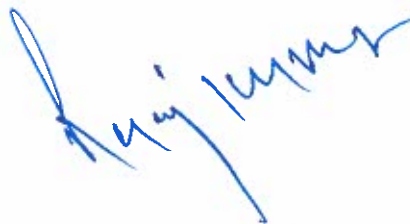
1. Classrooms (4)
 - a. Minimum number of classrooms -4
 - b. Size of each classroom: 10 Square feet per student (10X30= 300 Sq. ft)
2. Basic Science lab: (3)
 - a. Optics lab: 20 square feet per student (20X30= 600 Sq. ft)
 - b. Biochemistry and physiology lab: 20 Sq. ft per student)
 - c. Anatomy lab: 20 square feet per student (20X30= 600 Sq. ft)
3. Clinical Lab: (2)
 - a. Size: 20 Sq. ft per student (20X30 = 600 Sq. ft)
 - b. One room for Refraction Lane: 6 lanes for 30 students
 - c. One room for lanes on Contact lens, Binocular vision and low vision clinic
4. Library: (1)
 - a. 30 Sq. ft per students (30x30= 900 Sq. ft)
5. Common Room for girls- (1)
6. Common Room for boys- (1)
7. Auditorium (optional)- (1)
8. Principal and Administration office: Two rooms of 500 sq. ft.
9. Faculty room: One room of 500 sq. ft.
10. Computers: Twenty Desktop computers with necessary software applications

Clinical infrastructure

A school of optometry should have an attached clinic/hospital to cater to the clinical learning. Every student, irrespective of the year of the programme he/ she is enrolled in, is expected to examine (under supervision in the first three years) at least 5 patients per day on the days of clinical postings as prescribed in the curriculum.

Minimum Equipment (for 30 students) for the B Optom program

1. Distance vision drum: (6)
2. Trial set: (6)
3. Streak retinoscope*(6)
4. Keratometer: (6)
5. Lensometer: (6)
6. Slit lamp: (6)



7. Applanation tonometer: (6)
8. Direct Ophthalmoscope*(6)
9. Indirect Ophthalmoscope: (3)
10. Non-mydratic fundus camera-(1)
11. Color vision test (Ishihara)- (3)
12. Contact lens
 - RGP contact Lens kit - 3 sets comprising choices of base curves and powers
 - Disposable Soft contact lenses kit-3 sets comprising choices of base curves and powers
13. Low Vision
 - Log MAR chart (Distance and Near) -(1 each)
 - Contrast Sensitivity chart-(1): Pelli-Robson CS chart
 - Optical low vision devices
 - Non optical low vision devices
 - Video magnifiers/ SeeTV/ Smart vision glasses – one each
14. Binocular Vision
 - Accommodative flippers (+/- 1.50 and 2) (1 each)
 - Prism Bars (1)
 - Stereo-acuity test chart (1)
 - Modified Thorington (1)
 - Vergence Flippers (12 BO/3 BI) (2)
 - Near Worth Four dot test
15. Dispensing
 - Geneva Lens measure (6)
 - Axis, PAL" marking and Grid charts (1 each)
 - PD ruler (10)
 - Pen torch-(10)
 - Uncut and cut lenses

R. K. Kumar

Shyama

A. Roopma

Frame adjustment kit (1)

Pupillometer- (2)

- Students are expected to possess one streak retinoscope and Direct Ophthalmoscope on their own
- Institutions are expected to buy original versions of the test charts and maintain calibration of all the equipment periodically

Desirable Batch size for B.Optom:

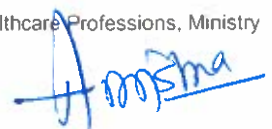
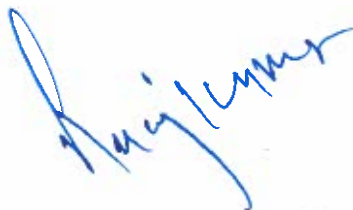
It should be proportional to the OPD (Outpatient Department) of the clinic/hospital. Each student should be able to examine minimum of 5 patients per day. For example: For an OPD of 150, one can have an intake of 30 students per batch. A clinic/hospital having an OPD of 500 can have the intake of 100 students per batch. If the intake is more than 30, infrastructure should also be increased proportionally. Student and faculty ratio is 10:1. The maximum batch size should be proportional to infrastructure, number of faculties and OPD.

Desirable Batch size for M.Optom:

- Maximum of 25% of Bachelor's program shall be the batch size of a post graduate program.
- Teachers at the level of Assistant Professor II or Scientist D and above shall guide the students
- The teacher student ratio for dissertation guidance shall be 1:4.

Guidelines for standalone institutes:

- A clear legal vetted (Notarised stamp paper) Memorandum of understanding (MoU) needs to be provided for any institute/hospital for sharing the infrastructure and it should follow the NCAHP guidelines.



Faculty requirement for UG:

- Full time (FT); Part time (PT)
- It is recommended that a core faculty and student ratio for UG 1:15 to be followed.
- Faculty (Optometrists) ratio shall be approximately 1:2:5 for Professor: Associate Professor: Assistant Professor.
- Ideally all the faculties should be full time. In case of non-availability of full time faculty, 40% may be part time/visiting/Ad hoc faculties (non-core subjects only)
- Faculties appointed for academics for teaching purposes are considered as Full time (Maximum of 8 hours per day or Minimum 40 hours per week).
- If the college/hospital wants faculties to take care of OPD for 3 days in a week, then faculty requirement shall be doubled.
- Visiting faculties can also be considered as part time.

Suggested faculty strength for UG:

30 seats (5*30=150 students)	40 seats	50 seats	60 seats	100 Seats
	(5*40=200 students)	(5*50= 250 students)	(5*60= 300 students)	(5*100= 500 students)
Professor - 1	Professor - 1	Professor -1	Professor - 2	Professor - 3
Assoc. Prof. - 2	Assoc. Prof. - 2	Assoc. Prof. - 3	Assoc. Prof. - 3	Assoc. Prof. - 6
Asst. Prof. - 8	Asst. Prof. - 11	Asst. Prof. - 13	Asst. Prof. - 15	Asst. Prof. - 24

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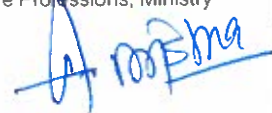
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Library Details:

Item	Requirement
Text Books As per syllabus; one copy of Book per 10 students.	Approximately 450 books for 30 intake and 900 books for 60 in take for UG.
Reference books	100 Advanced Books As per requirement
Journals	At least 2 international and 2 national journals
Subscription to electronic data base / e-journals	Required
Mandatory Internet facility Access to e-library Equipment	Minimum 15 computer terminals for 60 students/8 for 30 students.

Faculty requirement for PG:

- Principal/Vice principal/HOD is same for both UG and PG programs.
- It is recommended that a core faculty and student ratio of 1:3 for PG to be followed.
- Minimum of 5 optometry speciality clinics (headed by Optometrists only) need to be seen by a PG student in EACH speciality clinic.
- Student faculty ratio needs to be 3:1 at least Associate professor Level for PG teaching. In case of non-availability of full time faculty, 30% may be part time/visiting/Ad hoc faculties.
- Separate facilities need to be provided for PG students/Fellowship programs/PhD programs.



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Raj Kumar *Surya*

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