

Era University

CURRICULUM & EVALUATION SCHEME

OF

BACHELOR OF OPTOMETRY (B.OPTOM)

[APPLICABLE W.E.F. ACADEMIC SESSION 2023-27]



ERA UNIVERSITY

Hardoi Road, Lucknow, Uttar Pradesh Website:

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About Optometry:

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.’

Since the past few years, many professional groups have been interacting and seeking guidance on all those who would qualify under the purview of “allied and healthcare professionals”. In the healthcare system, statutory bodies exist for clinicians, nurses, pharmacists and dental practitioners; but a regulatory structure for around 50 professions is absent in India. Currently, the Government is considering these professions (as listed Annex-1) under the ambit of the allied and healthcare system. However, this number is subject to changes and modifications over time, particularly considering how quickly new technologies and new clinical avenues are expanding globally, creating newer cadres of such professionals.

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 and advanced protocols are now in high demand. In fact, diagnosis is now so dependent on technology, that allied and healthcare professionals (AHPs) are vital to successful treatment delivery.

Effective delivery of healthcare services depends largely on the nature of education, training and appropriate orientation towards community health of all categories of health personnel, and their capacity to function as an integrated team. For instance in the UK, more than 84,000 AHPs, with a range of skills and expertise, play key roles within the National Health Service, working autonomously, in multi-professional teams in various settings. All of them are first-contact practitioners and work across a wide range of locations and sectors within acute, primary and community care. Australia's health system is managed not just by their doctors and nurses, but also by the 90,000 university-trained, autonomous AHPs vital to the system.

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, though the Indian healthcare system still revolves around the doctor-centric approach. 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 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. 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, 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.

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

ERA UNIVERSITY
Study of Evaluation Scheme
Of
Bachelor of Optometry (B.Optom)

Programme : Bachelor of Optometry(B.optom)
Duration : Four years Full time(Eight semesters)
 Including one year compulsory Internship
Medium : English
Minimum Required Attendance : 75%
Total Credits : 200

Assessment :

Internal	External	Total
30	70	100

Internal Evaluation (Theory Papers):

Class Presentation	Care Marks	Attendance	Assignment	Mid Term Exam	Total
04	06	04	04	12	30

Evaluation of Practical/Dissertations & Project Reports:

Internal	External	Total
30	70	100

Duration of Examination:

Internal	External
01 Hrs	03 Hrs

To qualify a course/subject the student is required to secure a minimum of 40% marks in aggregate including the semester examination and teachers continuous evaluation. (i.e. both internal and external). A candidate who secures less than 40% of marks in a course shall be deemed to have failed in that course. The student should have secured at least 50% marks in aggregate to clear the semester. The subject marked with asterisk (*) in Semester-I &II are noncore papers.

Eligibility for admission:

Selection procedure:

1. He/she has passed the Higher Secondary (10+2) or equivalent examination recognized by any Indian University or a duly constituted Board with pass marks in Physics, Chemistry, Biology

OR

Diploma in Optometry after completing 12th class/ 10 +2 of CBSE or equivalent with minimum aggregate of 50% marks in physics chemistry and biology provided the candidate has passed in each subject separately.

2. Candidates who have studied abroad and have passed the equivalent qualification as determined by the Association of Indian Universities will form the guideline to determine the eligibility and must have passed in the subjects: Physics, Chemistry, Biology and English up to 12th Standard level.
3. Candidates who have passed the Senior Secondary school Examination of National Open School with a minimum of 5 subjects with any of the following group subjects.
 - A. English, Physics, Chemistry, Botany, Zoology
 - B. English, Physics, Chemistry, Biology and any other language
4. He/she has attained the age of 17 years as on - (current year) & maximum age limit is 30 years.
5. He/she has to furnish at the time of submission of application form, a certificate of Physical fitness from a registered medical practitioner and two references from persons other than relatives testifying to satisfactory general character.
6. Admission to B.Opto course shall be made on the basis of eligibility and an entrance test to be conducted for the purpose. No candidate will be admitted on any ground unless he/she has appeared in the admission test and interview.
 - A. Entrance test, to be conducted by the university as per the syllabus under 10 +2 scheme of CBSE, subject-wise distribution of questions will be as 30% in Physics, 30% in biology, 30% in Chemistry, 5% in English (Language & Comprehension) and 5% in General Awareness about health related methods.
 - B. . Successful candidates on the basis of written Test will be called for the interview & shall have face an interview board. The interview board will include the Head of the Department of medical imaging (Chairman of the Board) along with the Principal / chief faculty as well

as Chief of MRIT apart from other nominees, whose recommendations shall be final for the selection of the students..

- C. During subsequent counseling (s) the seat will be allotted as per the merit of the candidate depending on the availability of seats on that particular day.
- D. Candidate who fails to attend the Medical Examination on the notified date(s) will forfeit the claim for admission and placement in the waiting list except permitted by the competent authority under special circumstances.
- E. The name of the student(s) who remain(s) absent from classes for more than 15 days at a stretch after joining the said course will be struck off from the college rolls without giving any notice.

Provision of Lateral Entry:

Lateral entry to second year for allied and healthcare science courses for candidates who have passed diploma program from the Government Boards and recognized by State/Central University, fulfilling the conditions specified and these students are eligible to take admission on lateral entry system only if the same subject have been studied at diploma level.

Duration of the course

Duration of the course: 4 years or 8 semesters including 1440 hours of internship.

Medium of instruction:

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

General information:

1. Attendance:

A candidate has to secure minimum 80% attendance in overall with at least-

- A. 75% attendance in theoretical
- B. 75% in Skills training (practical) for qualifying to appear for the final examination.

No relaxation, whatsoever, will be permissible to this rule under any ground including indisposition etc.

2. 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. Student must

attain at least 40% marks in each Theory, Internal assessment and Practical independently / separately for each individual subject.

>70% Distinction

60%-First Division

50-59% Second Division

40-49% Third Division

3. Aggregate passing marks 40%.
4. Practical exam must be completed within 15 days after the theory exam.
5. 15 Days summer vacation and 7 days winter vacation.
6. A candidate who fails in all subject will be termed as year back and if candidate passes in 50% of subject then he will be promoted in next semester and if candidate passes his/her in all subject then it will be termed as all clear.
7. Abbreviation used:
 - L- Lecture
 - P-Practical
 - T-Tutorial
 - H-Hospital posting

INTERNSHIP

Internship is a phase of training where a student is expected to conduct actual practice of clinical optometry and acquire skills under supervision so that he/she may become capable of functioning independently.

INTERNSHIP DURATION: ONE YEAR

Every candidate will be required after successfully completing the final Bachelor in Optometry Examination, to undergo compulsory rotator internship to satisfaction of the University for a period of 6 months so as to be eligible for the award of the degree.

The University shall issue a provisional degree of Bachelor in Optometry on passing the final examination after the completion of internship on demand by the candidate.

The internee shall be entrusted with optometry responsibilities under direct supervision of Senior Optometrist. They shall not be working independently.

Internee will not issue certified copy of investigation reports or other related documents under their signature.

ASSESSMENT OF INTERNSHIP

The Internee shall maintain the record of work, which is to be verified and certified by the senior Optometrist under whom he/she works. Apart from scrutiny of record of work, assessment and evaluation of training shall be undertaken by an objective approach using situation tests in knowledge, skills and attitude during at the end of training. Based on the record of work and date of evaluation The Director/Principal shall issue certificate for satisfactory completion of training following which the university shall award the degree of Bachelor in Optometry to the candidate.

- Satisfactory completion shall be determined on the basis of the following.
- Proficiency of knowledge required for each Optometry techniques.
- The competency and skills expected to manage each optometry technique.
- Responsibility, punctuality works up of optometry techniques, involvement in special procedures and preparation of reports.
- Capacity to work in a team (behavior with colleagues, nursing staff and relationship with medical and paramedical).
- Initiating, **participating** in discussions and developing research aptitude.

- Only 12 leaves are allowed to an internee during the period of his/her internship. If he/she extend his/her leave in the duration of internship, the period the internship shall be extended by double the days for which the student was absent.

Leave Rule

Summer Vacation: - 15 Days

Winter Vacation: - 7 Days

Preparation Leave: - 7 Days

Internship Log Book

The Log Book Submitted by the candidate will be duly verified & a viva voce shall be conducted on the same at the time of Practical Examination of final year.

S.N.	TOPIC	NO. OF CASES
1	Clinical Observation and Report writing	5
2	Visual Acuity – Distance + Near	5
3	History taking General Specific Conditions	5
4	Visual Acuity – Distance + Near (log MAR) Pinhole acuity	5
5	Extra ocular Motility	5
6	Cover test	5
7	Push up test (Amplitude of Accommodation)	5
8	Push up test (Near point of Convergence)	5
9	Stereopsis test	5
10	Tear Break up time	5
11	Amsler's Grid test	5
12	Color vision test	5
13	Schirmer's test	5
14	Confrontation visual field test	5
15	Slit lamp examination	5
16	Digital tonometry	5
17	Schiotz Tonometry	5
18	Von Herick Grading of Anterior chamber depth	5
19	Accommodative facility(+ 2.00 D)	5
20	Corneal Sensitivity test	5
21	IPD measurement	5
22	Proptosis evaluation	5
23	Ptosis evaluation	5
24	Pupillary evaluation Direct Consensual RAPD	5
25	Maddox rod (Phoria)	5

26	Retinoscopy- Static, Dynamic and Cycloplegic Retinoscopy	5
27	Keratometry	5
28	Subjective Refraction JCC Duo chrome	5
29	Visual Field chart interpretation	5
30	B scan observation	5
31	A scan chart Interpretation	5
32	Case Analysis	5
33	Contact Lens	5
34	Low Vision care Clinic	5
35	Binocular Vision clinic	5
36	Ophthalmology clinic (Common eye conditions)	10

Programme Structure 2023

Bachelor of Optometry (Total Credits -

B.Optom Semester- I (First Year)

First Semester

s.no.	Subjects (Theory)	Paper code	Hrs. per Week		Maximum Marks		
			Actual	Credit	I.A.	Exam	Total
1.	General Anatomy	BOT-101	03	03	30	70	100
2.	General Physiology	BOT-102	03	03	30	70	100
3.	General Biochemistry	BOT-103	02	02	30	70	100
4.	Geometrical Optics-I	BOT-104	03	03	30	70	100
5.	Nutrition	BOT-105	02	02	30	70	100
6.	English & Communication Skill	ENG-101	02	02	30	70	100
	Total		15	15	180	420	600

s.no.	Subjects (Practical)	Paper code	Hrs. per Week		Maximum Marks		
			Actual	Credit	I.A.	Exam	Total
1.	General Anatomy	BOP-101	02	01	30	70	100
2.	General Physiology	BOP-102	02	01	30	70	100
3.	General Biochemistry	BOP-103	02	01	30	70	100
4.	Geometrical Optics-I	BOP-104	02	01	30	70	100
	Total		08	04	120	280	400

B.Optom Semester- II (First Year)

s.no.	Subjects (Theory)	Paper code	Hrs. per Week		Maximum Marks		
			Actual	Credit	I.A.	Exam	Total
1.	Ocular Anatomy	BOT-201	03	03	30	70	100
2.	Ocular Physiology	BOT-202	03	03	30	70	100
3.	Ocular Biochemistry	BOT-203	02	02	30	70	100
4.	Geometrical Optics- II	BOT-204	03	03	30	70	100
5.	Physical Optics	BOT-205	02	02	30	70	100
6.	Basic of Computers	BOT-206	02	02	30	70	100
	Total		15	15	180	420	600

s.no.	Subjects (Practical)	Paper code	Hrs. per Week		Maximum Marks		
			Actual	Credit	I.A.	Exam	Total
1.	Clinical Optometry-I	BOP-201	06	03	30	70	100
2.	Basic of Computers	BOP-202	02	01	30	70	100
	Total		08	04	60	140	200

B.Optom Semester- III (Second Year)

Third Semester

s.no.	Subjects (Theory)	Paper code	Hrs. per Week		Maximum Marks		
			Actual	Credit	I.A.	Exam	Total
1.	Ocular Microbiology	BOT-301	02	02	30	70	100
2.	Visual Optics-I	BOT-302	02	02	30	70	100
3.	Optometric Optics-I	BOT-303	02	02	30	70	100
4.	Optometric Instruments	BOT-304	02	02	30	70	100
5.	Ocular Disease-I	BOT-305	03	03	30	70	100
6.	Clinical Examination of Visual System	BOT-306	02	02	30	70	100
7.	Indian Medicine & Tele Medicine	BOT-307	02	02	30	70	100
	Total		15	15	210	490	700

s.no.	Subjects (Practical)	Paper code	Hrs. per Week		Maximum Marks		
			Actual	Credit	I.A.	Exam	Total
1.	Clinical Optometry-II	BOP-301	06	03	30	70	100
	Total		06	03	30	70	100

B.Optom Semester- IV (Second Year)

Fourth Semester

s.no.	Subjects (Theory)	Paper code	Hrs. per Week		Maximum Marks		
			Actual	Credit	I.A.	Exam	Total
1.	Optometric Optics-II & Dispensing Optics	BOT-401	02	02	30	70	100
2.	Visual Optics-II	BOT-402	03	03	30	70	100
3.	Ocular Disease-II	BOT-403	03	03	30	70	100
4.	Pathology	BOT-404	02	02	30	70	100
5.	Basic & Ocular Pharmacology	BOT-405	03	03	30	70	100
6.	Introduction to Quality & Patient Safety	BOT-406	02	02	30	70	100
7.	Medical Psychology	BOT-407	02	02	30	70	100
	Total		17	17	210	490	700

s.no.	Subjects (Practical)	Paper code	Hrs. per Week		Maximum Marks		
			Actual	Credit	I.A.	Exam	Total
1.	Clinical Optometry-III	BOP-408	08	04	30	70	100
	Total		08	04	30	70	100

B. Optom Semester- V (Third Year)

Fifth Semester

s.no.	Subjects (Theory)	Paper code	Hrs. per Week		Maximum Marks		
			Actual	Credit	I.A.	Exam	Total
1.	Contact Lens-I	BOT-501	03	03	30	70	100
2.	Low Vision Care	BOT-502	02	02	30	70	100
3.	Geriatric & Paediatric Optometry	BOT-503	03	03	30	70	100
4.	Binocular Vision-I	BOT-504	03	03	30	70	100
5.	Systemic Disease	BOT-505	03	03	30	70	100
6.	Research Methodology & Biostatistics	BOT-506	03	03	30	70	100
	Total		17	17	180	420	600

s.no.	Subjects (Practical)	Paper code	Hrs. per Week		Maximum Marks		
			Actual	Credit	I.A.	Exam	Total
1.	Clinical Optometry-IV	BOP-501	08	04	30	70	100
	Total		08	04	30	70	100

B.Optom Semester- VI (Third Year)

Sixth Semester

s.no.	Subjects (Theory)	Paper code	Hrs. per Week		Maximum Marks		
			Actual	Credit	I.A.	Exam	Total
1.	Contact Lens-II	BOT-601	03	03	30	70	100
2.	Binocular Vision-II	BOT-602	03	03	30	70	100
3.	Public Health & Community Optometry	BOT-603	02	02	30	70	100
4.	Practice Management	BOT-604	02	02	30	70	100
5.	Occupational Optometry	BOT-605	02	02	30	70	100
6.	Optometric Law & Ethics	BOT-606	02	02	30	70	100
	Total		14	14	180	420	600

s.no.	Subjects (Practical)	Paper code	Hrs. per Week		Maximum Marks		
			Actual	Credit	I.A.	Exam	Total
1.	Clinical Optometry-V	BOP-601	08	04	30	70	100
2.	Research Project	BOP-603	03	03	30	70	100
	Total		11	07	60	140	200

SIXTH SEMESTER (3rd year)

COURSE/ PAPER -CONTACT LENS II

PAPER CODE- BOT-601

L	T	P	C
3	-	2	4

Learning Objective – The objective of the course is to provide suitable knowledge to them students regarding theoretical as well as practical aspects of Contact Lenses

Learning outcome: At the course of the course the student will be able to understand the basics, types ,properties, design and adverse effects of contact lenses.

UNIT 1

- SCL Materials & Review of manufacturing techniques
- Comparison of RGP vs. SCL
- Pre-fitting considerations for SCL

UNIT 2

- Fitting philosophies for SCL
- Fit assessment in Soft Contact Lenses: Types of fit – Steep, Flat, Optimum
- Calculation and finalising SCL parameters 6.1 Disposable lenses
- Advantages and availability

UNIT 3

- Soft Toric CL- Stabilization techniques, Parameter selection
- Fitting assessment
- Common Handling Instructions- Insertion & Removal Techniques, Do's and Don'ts
- Care and Maintenance of Soft lenses Cleaning agents & Importance

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UNIT 4

- Rinsing agents & Importance

- Disinfecting agents & importance
- Lubricating & Enzymatic cleaners
- Follow up visit examination
- Complications of Soft lenses

UNIT 5

- Therapeutic contact lenses- Indications
- Fitting consideration
- Specialty fitting Aphakia
- Pediatric
- Post refractive surgery
- Management of Presbyopia with Contact lenses

Practical

1. Examination of old soft Lens
2. RGP Lens fitting
3. RGP Lens Fit Assessment and fluorescein pattern
4. Special RGP fitting (Aphakia, pseudo phakia&Keratoconus)
5. RGP over refraction and Lens flexure
6. Examination of old RGP Lens
7. RGP Lens parameters
8. Fitting Cosmetic Contact Lens
9. Slit lamp examination of Contact Lens wearers
10. Fitting Toric Contact Lens
11. Bandage Contact Lens
12. SPM & Pachymetry at SN During Clinics

- Specialty Contact Lens fitting (at SN during clinics)

TEXT BOOKS:

1. IACLE modules 1 - 10
2. CLAO Volumes 1, 2, 3
3. Anthony J. Phillips : Contact Lenses, 5th edition, Butterworth-Heinemann, 2006
4. Elisabeth A. W. Millis: Medical Contact Lens Practice, Butterworth-Heinemann, 2004
5. E S. Bennett ,V A Henry :Clinical manual of Contact Lenses, 3rd edition, Lippincott Williams and Wilkins, 2008

Name of the Program	Bachelor of optometry			Year/Semester:	6TH
Course Name	CONTACT LENS-II	Course Code:	BOT-601	Type: Semester	
Credits	3			Total Sessions Hours:	45
Evaluation Spread	Internal			End Term Exam:	
	Contineuous				
	Assessment:				
Type of Course	<input type="radio"/> Compulsory	<input checked="" type="radio"/> Core	<input type="radio"/> Creative	<input type="radio"/> Life Skill	
Course Objectives	To enable the students to have knowledge in both theoretical and practical aspects of Contact Lenses				
Course Outcomes(CO): <i>After the successful course completion, learners will develop following attributes:</i>					
Course outcome(CO)					
CO1	Understanding about soft contact lens material & their property, selection of parameter				
CO2	Understanding about soft contact lens fitting characteristics and evaluation of fitting				
CO3	Understanding about toric soft contact lens, stabilization techniques and application				
CO4	Learn about complication and their management of soft contact lenses				
CO5	Understanding about specialty contact lenses				
Pedagogy	Flipped classroom Class Rotation (Whole and Group) Differentiated Learning Contextual Learning				
Internal Evaluation Mode	Class test+ weekly assignment Attendance Tutorial Role play Active learning				
UnitNO.	Title of the unit	Topic of unit		Hours	Ma ppe d CO
		6			

Unit1		<ul style="list-style-type: none"> • SCL Materials & Review of manufacturing techniques • Comparison of RGP vs. SCL • Pre-fitting considerations for SCL 	8	CO1
Unit2		<ul style="list-style-type: none"> - Fitting philosophies for SCL - Fit assessment in Soft Contact Lenses: Types of fit – Steep, Flat, Optimum - Calculation and finalising SCL parameters 6.1 Disposable lenses - Advantages and availability 	10	CO2
Unit3		<ul style="list-style-type: none"> - Soft Toric CL- Stabilization techniques, Parameter selection - Fitting assessment - Common Handling Instructions- Insertion & Removal Techniques, Do's and Don'ts - Care and Maintenance of Soft lenses Cleaning agents & Importance - - 	10	CO3
Unit4		<ul style="list-style-type: none"> - Rinsing agents & Importance - Disinfecting agents & importance - Lubricating & Enzymatic cleaners - Follow up visit examination - Complications of Soft lenses - 	8	CO4
Unit 5		<ul style="list-style-type: none"> - Therapeutic contac lenses- Indications - - Fitting consideration - - Specialty fitting Aphakia - 	9	CO5

		<ul style="list-style-type: none"> - Pediatric - - Post refractive surgery - - Management of Presbyopia with Contact lenses - 		
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CO-PO and PSO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	1	3	1	2	-	-	-	1	2	2	1	1	1	2
CO2	1	3	2	2	-	-	-	1	2	2	1	1	1	2
CO3	1	3	1	2	-	-	-	1	2	1	1	1	1	2
CO4	2	3	1	2	-	-	-	1	2	2	1	1	1	2
CO5	1	3	1	2	-	-	-	1	2	1	1	1	1	2

Strong contribution-3, Average contribution-2, Low contribution-1,

Suggested Readings:

Text-Books	<ol style="list-style-type: none"> 4. IACLE modules 1 - 10 5. CLAO Volumes 1, 2, 3 6. Anthony J. Phillips : Contact Lenses, 5th edition, Butterworth-Heinemann, 2006 7. Elisabeth A. W. Millis: Medical Contact Lens Practice, Butterworth-Heinemann, 2004 8. E S. Bennett ,V A Henry :Clinical manual of Contact Lenses, 3rd edition, Lippincott Williams and Wilkins, 2008
Reference Books	<ol style="list-style-type: none"> 1. Contact Lenses – Dr. V.K. Dada. 2. Contact Lenses Practice - Robbert B. Mandell 3. Contact lens primer by Monica Chaudhary, Jaypee Brothers medical publishers (P) Ltd 4. IACLE Contact lens modules. 5. Contact lens primer by Monica Chaudhary, Jaypee Brothers medical publishers (P) Ltd. 6. Contact Lenses- Anthony Phillips, Lynne Speedwell.

Para Text	Unit1: Unit2: Unit3: Unit4: Unit5;
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Recapitulation & Examination Pattern

Internal Continuous Assessment:

Component	Marks	Pattern
Mid Semester	12	12 marks theory(including MCQ, SHORT NOTE , LONG QUESTION)
Class Test	5	Short note
Online Test/Objective Test	5	MCQ
Assignment/Presentation	4	Assignment(2 MARKS) +Presentation(2MARKS)
Attendance	4	65-75 % 1 MARKS 75-85 2 MARKS 85-95 3 MARKS MORE THAN 95 % 4 MARKS
Total Marks	30	

Course created by: Jamshed Ali (AP)
Signature:

Approved by:
Signature:

SIXTH SEMESTER

COURSE/ PAPER -BINOCULAR VISION-II

PAPER CODE- BOT-602

L	T	P	C
3	-	2	4

Learning objective- The objective of this course is to inculcate the student with the knowledge of different types of strabismus, its etiology, clinical features, necessary investigations and management.

Learning outcome- At the end of the course the student will be able to perform all the investigations to check retinal correspondence, state of Binocular Single Vision, angle of deviation and special investigations for paralytic strabismus.

UNIT 1

- Neuro-muscular anomalies- Classification and etiological factors
- History – recording and significance.

UNIT 2

Convergent strabismus- Accommodative convergent squint-Classification, Investigation and Management, Non accommodative Convergent squint- Classification, Investigation and Management

Divergent Strabismus-Classification, A& V phenomenon, Investigation and Management

UNIT 3

Vertical strabismus-Classification, Investigation and Management

Paralytic Strabismus--Classification, Investigation and Management

Distinction from comitant and restrictive Squint

UNIT 4

Investigations

- History and symptoms
- Head Posture
- Diplopia Charting
- Hess chart
- PBCT

- Nine directions
- Binocular field of vision
- Amblyopia and Treatment of Amblyopia
- Nystagmus

UNIT 5

- Non-surgical Management of Squint
- Restrictive Strabismus
- Features
- Musculo- fascical anomalies
- Duane's Retraction syndrome
- Clinical features and management
- Brown's Superior oblique sheath syndrome
- Strabismus fixus
- Congenital muscle fibrosis
- Surgical management

Practical

Deals with hand-on session the basic binocular vision evaluation techniques.

TEXT BOOKS:

1. Pradeep Sharma: Strabismus simplified, New Delhi, First edition, 1999, Modern publishers.
2. Fiona J. Rowe: Clinical Orthoptics, second edition, 2004, Blackwell Science Ltd
3. Gunter K. Von Noorden: BURIAN- VON NOORDEN'S Binocular vision and ocular motility theory and management of strabismus, Missouri, Second edition, 1980, C. V. Mosby Company ⁶
4. Mitchell Scheiman; Bruce Wick: Clinical Management of Binocular Vision Heterophoric, Accommodative, and Eye Movement Disorders, 2008, Lippincot Williams & Wilkins publishers

Name of the Program	B.Sc. (OPTOMETRY)			Year/ Semester:	3rd Year/ 6th Semester
Course Name	Binocular Vision-II	Course Code:	BOT-602	Type:	Theory
Credits	04 (L-3, T-1, P-0)			Total Sessions Hours:	40 Hours
Evaluation Spread	Internal Continuous Assessment:	30 Marks		End Term Exam:	70 Marks
Type of Course	<input type="radio"/> Compulsory	<input checked="" type="radio"/> Core	<input type="radio"/> Creative	<input type="radio"/> Life Skill	
Course Objectives	<ol style="list-style-type: none"> 1. The objective of this course is to inculcate the student with the knowledge of different types of strabismus its etiology signs and symptoms, necessary investigations and also management. 2. The student on completion of the course should be able to independently investigate and diagnose case of strabismus with comments in respect to retinal correspondence and binocular single vision. 3. The student should be able to perform all the investigations to check retinal correspondence, state of Binocular Single Vision, angle of deviation and special investigations for paralytic strabismus. 				
Course Outcomes (CO): After the successful course completion, learners will develop following attributes:					
Course Outcome (CO)	To familiarize students with the causes, symptoms, diagnostic methods, and management approaches for strabismus..				
	Attributes				
CO1	Exploring the various factors leading to strabismus, such as congenital factors, neurological conditions, refractive errors, trauma, and systemic diseases.				
CO2	Identifying the key clinical signs of strabismus, including misalignment of the eyes, double vision, and difficulties with depth perception.				
CO3	Learning about essential diagnostic tests like visual acuity assessments, cover tests, ocular motility examinations, and refraction tests to confirm strabismus diagnosis.				
CO4	Understanding the different treatment options available, including corrective lenses, vision therapy, prism glasses, and surgical interventions, and their respective roles in managing strabismus.				
CO5	To familiarize students with theoretical knowledge it teaches the clinical aspects and application				
Pedagogy	Interactive, discussion-bases, student-centered, presentation.				
Internal Evaluation Mode	Mid-term Examination: 12 Marks Class 6 test((Participation): 04 Marks Class Presentation : 04 Marks Assignments/Presentation: 04 Marks Attendance: 04 Marks Bed side Behavior: 02 Marks				

Session Details	Topic	Hours	Mapped CO
Unit 1	<ul style="list-style-type: none"> Neuro-muscular anomalies- Classification and etiological factors History – recording and significance. 	06	CO1
Unit 2	<ul style="list-style-type: none"> Convergent strabismus- Accommodative convergent squint-Classification, Investigation and Management, Non accommodative Convergent squint-Classification, Investigation and Management Divergent Strabismus-Classification, A& V phenomenon, Investigation and Management 	10	CO2
Unit 3	<ul style="list-style-type: none"> Vertical strabismus-Classification, Investigation and Management Paralytic Strabismus--Classification, Investigation and Management Distinction from comitant and restrictive Squint 	10	CO3
Unit 4	Investigations • History and symptoms • Head Posture • Diplopia Charting • Hess chart • PBCT • Nine directions • Binocular field of vision • Amblyopia and Treatment of Amblyopia • Nystagmus	08	CO4
Unit 5	Non-surgical Management of Squint • Restrictive Strabismus • Features • Musculo-fascical anomalies • Duane’s Retraction syndrome • Clinical features and management • Brown’s Superior oblique sheath syndrome • Strabismus fixus • Congenital muscle fibrosis • Surgical management	06	CO5

CO-PO and PSO Mapping

CO	PO 1	PO 2	PO 3	PO4	PO5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO6
CO1	1	3	1	2	-	-	-	1	2	1	2	2	-	-
CO2	2	3	2	2	-	-	-	1	2	2	1	1	-	-
CO3	1	3	1	2	-	-	-	1	2	1	2	2	-	-
CO4	2	3	1	2	-	-	-	1	2	2	3	3	-	-
CO5	1	3	1	2	-	-	-	1	2	1	2	2	-	-

Strong contribution-3, Average contribution-2, Low contribution-1,

Suggested Readings:

Text- Books	<ol style="list-style-type: none"> 1. Pradeep Sharma: Strabismus simplified, New Delhi, First edition, 1999, Modern publishers. 2. Fiona J. Rowe: Clinical Orthoptics, second edition, 2004, Blackwell Science Ltd 3. Gunter K. Von Noorden: BURIAN- VON NOORDEN'S Binocular vision and ocular motility theory and management of strabismus, Missouri, Second edition, 1980, C. V. Mosby Company 4. Mitchell Scheiman; Bruce Wick: Clinical Management of Binocular Vision Heterophoric, Accommodative, and Eye Movement Disorders, 2008, Lippincot Williams & Wilkins publishers
Reference Books	<ul style="list-style-type: none"> • Binocular Vision and Ocular Motility: Theory and Management of Strabismus" by Gunter K. von Noorden and Emilio C. Campos • Clinical Management of Binocular Vision: Heterophoric, Accommodative, and Eye Movement Disorders" by Mitchell Scheiman and Bruce Wick • Pediatric Ophthalmology and Strabismus" by Kenneth W. Wright and Peter H. Spiegel • Binocular Anomalies: Diagnosis and Vision Therapy" by John R. Griffin and Ronald Gall • Clinical Strabismus Management: Principles and Surgical Techniques" by Arthur L. Rosenbaum and Alvina Pauline Santiago

Recapitulation & Examination Pattern

Internal Continuous Assessment:

Component	Marks	Pattern
Mid Semester :	12	<p>Section A: Contains 10 MCQs/Fill in the blanks/One Word Answer/ Each question carries 04 Marks.</p> <p>Section B: Contains 02 Short questions out of which 03 questions are to be attempted. Each question carries 02 Marks.</p> <p>Section C: Contains 01descriptive questions are to be attempted & Question carries 04 Marks</p>
Class Test :	04	Contains 05 descriptive questions . Each question carries 04 Mark.
Class Presentation :	04	Contains 10 multiple choice questions . Each question carries 1 Marks.
Assignment/ Presentation :	04	Assignment to be made on topics and instruction given by subject teacher
Attendance :	04	As per policy
Bed side Behavior :	02	As per policy
TOTAL	30	

<p>Course Created by:- Mrs. Namrata Srivastava Assistant Professor</p> <p>Signature :</p>	<p>Course Approved by:- Mr. Sunil Kumar Gupta Asst. Prof. & Incharge</p> <p>Signature :</p>
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SIXTH SEMESTER

COURSE/ PAPER -PUBLIC HEALTH AND COMMUNITY OPTOMETRY

PAPER CODE- BOT-603

L	T	P	C
2	-	-	2

Learning objective- The Objective of this course is to provide proper knowledge about the prevalence of various eye diseases and community based eye care system in India.

Learning outcome- At the end of the course the student will have enough knowledge about health education programs and Vision screening for various eye diseases in the community for different age groups.

UNIT 1

- Public Health Optometry: Concepts and implementation, Stages of diseases
- Dimensions, determinants and indicators of health
- Levels of disease prevention and levels of health care patterns
- Epidemiology of blindness – Defining blindness and visual impairment

UNIT 2

- Eye in primary health care
- Contrasting between Clinical and community health programs
- Community Eye Care Programs
- Community based rehabilitation programs

UNIT 3

- Nutritional Blindness with reference to Vitamin A deficiency

- Vision 2020: The Right to Sight
- Screening for eye diseases
- National and International health agencies, NPCB

UNIT 4

- Role of an optometrist in Public Health
- Organization and Management of Eye Care Programs – Service Delivery models
- Health manpower and planning & Health Economics
- Evaluation and assessment of health programmes

UNIT 5

- Optometrists role in school eye health programmes
- Basics of Tele Optometry and its application in Public Health
- Information, Education and Communication for Eye Care programs

TEXT BOOKS:

1. GVS Murthy, S K Gupta, D Bachani: The principles and practice of community Ophthalmology, National programme for control of blindness, New Delhi, 2002
2. Newcomb RD, Jolley JL : Public Health and Community Optometry, Charles C Thomas Publisher, Illinois, 1980
3. K Park: Park's Text Book of Preventive and Social Medicine, 19th edition,
4. Banarsidas Bhanot publishers, Jabalpur, 2007

REFERENCE BOOKS:

1. MC Gupta, Mahajan BK, Murthy GVS, 3rd edition. Text Book of Community Medicine, Jaypee Brothers, New Delhi, 2002

**Course Outline Effective
From:2023-24**

Name of the Program	Bachelor of optometry			Year/Semester:	3rd/6th	
Course Name	Public Health & Community Optometry	Course Code:	BOT-603	Type:	Regular	
Credits	2			Total Sessions Hours:	30	
Evaluation Spread	Internal Continuous Assessment:	30		End Term Exam:	70	
Type of Course	<input type="radio"/> Compulsory	<input checked="" type="radio"/> Core	<input type="radio"/> Creative	<input type="radio"/> Life Skill		
Course Objectives	The Objective of this course is to provide proper knowledge about the prevalence of various eye diseases and community based eye care system in India.					
Course Outcomes(CO): At the end of the course the student will have enough knowledge about health education programs and Vision screening for various eye diseases in the community for different age groups.						
Course Outcome(CO)						
CO1	Understanding about basic concepts of public health's dimensions, determinants and other indicators.					
CO2	Understanding about primary eye health care and community based rehabilitation program					
CO3	Understanding about Nutritional blindness, its screening strategies and managements					
CO4	Learn about the role of optometrist in public health community					
CO5	Understanding about role of and optometrist in school screening programmes					
Pedagogy	Flipped classroom Class Rotation (Whole and Group) Differentiated Learning Contextual Learning					
Internal Evaluation Mode	Class test+ weekly assignment Attendance Tutorial Role play Active learning					
UnitNO.	Title of the unit	Topic of unit			Hours	Maped CO
		7				

Unit1	INTRODUCTION OF PUBLIC HEALTH	<ol style="list-style-type: none"> 1. Public Health Optometry: Concepts and implementation, Stages of diseases 2. Dimensions, determinants and indicators of health 3. Levels of disease prevention and levels of health care patterns 4. Epidemiology of blindness – Defining blindness and visual impairment 	6	CO1
Unit2	PRIMARY EYE HEALTH CARE IN COMMUNITY	<ol style="list-style-type: none"> 1. Eye in primary health care 2. Contrasting between Clinical and community health programs 3. Community Eye Care Programs 4. Community based rehabilitation programs 	6	CO2
Unit3	NUTRITIONAL BLINDNESS	<ol style="list-style-type: none"> 1. Nutritional Blindness with reference to Vitamin A deficiency 2. Vision 2020: The Right to Sight 3. Screening for eye diseases 4. National and International health agencies, NPCB 	6	CO3
Unit4	ROLE OF AN OPTOMETRIST IN PUBLIC HEALTH	<ol style="list-style-type: none"> 1. Role of an optometrist in Public Health 2. Organization and Management of Eye Care Programs – Service Delivery models 3. Health manpower and planning & Health Economics 4. Evaluation and assessment of health programmes 	6	CO4

Unit 5	ROLE OF AN OPTOMETRISTS IN SCHOOL EYE HEALTH PROGRAMMES	<ol style="list-style-type: none"> 1. Optometrists role in school eye health programmes 2. Basics of Tele Optometry and its application in Public Health 3. Information, Education and Communication for Eye Care programs 	6	CO5
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CO-PO and PSO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	1	3	1	2	-	-	-	1	2	2	1	1	1	2
CO2	1	3	2	2	-	-	-	1	2	2	1	1	1	2
CO3	1	3	1	2	-	-	-	1	2	1	1	1	1	2
CO4	2	3	1	2	-	-	-	1	2	2	1	1	1	2
CO5	1	3	1	2	-	-	-	1	2	1	1	1	1	2

Strong contribution-3, Average contribution-2, Low contribution-1,

Suggested Readings:

Text-Books	<ol style="list-style-type: none"> 1. GVS Murthy, S K Gupta, D Bachani: The principles and practice of community Ophthalmology, National programme for control of blindness, New Delhi, 2002 2. Newcomb RD, Jolley JL : Public Health and Community Optometry, Charles C Thomas Publisher, Illinois, 1980 3. K Park: Park's Text Book of Preventive and Social Medicine, 19th edition, 4. Banarsidas Bhanot publishers, Jabalpur, 2007
Reference Books	<ol style="list-style-type: none"> 1. MC Gupta, Mahajan BK, Murthy GVS, 3rd edition. Text Book of Community Medicine, Jaypee Brothers, New Delhi, 2002

Recapitulation & Examination Pattern

Internal Continuous Assessment:

Component	Marks	Pattern
Mid Semester	12	12 marks theory(including MCQ, SHORT NOTE , LONG QUESTION)
Class Test	5	Short note
Online Test/Objective Test	5	MCQ
Assignment/Presentation	4	Assignment(2 MARKS) +Presentation(2MARKS)
Attendance	4	65-75 % 1 MARKS 75-85 2 MARKS 85-95 3 MARKS MORE THAN 95 % 4 MARKS
Total Marks	30	

Course created by: SUNIL KUMAR GUPTA (AP)

Signature:

Approved by:

Signature:

SIXTH SEMESTER

COURSE/ PAPER -PRACTICE MANAGEMENT

PAPER CODE- BOT-604

L	T	P	C
2	-	-	2

Learning objective-The objective of this course is to provide knowledge regarding business, accounting, taxation, professional values, and quality and safety aspects of optometry practice management.

Learning Outcome- At the end of the course, student would have gained knowledge on various aspects of private optometric practice from Indian perspective.

UNIT 1

- Business Management:
- Practice establishment and development
- Stock control and costing
- Staffing and staff relations
- Business computerization

UNIT 2

- Accounting Principles
- Sources of finance
- Bookkeeping and cash flow

UNIT 3

- Taxation and taxation planning

UNIT 4

- Professionalism and Values
- Professional values- Integrity, Objectivity,

- Professional competence and due care, Confidentiality.

UNIT 5

- Personal values- ethical or moral values
- Attitude and behaviour- professional behaviour, treating people equally
- Code of conduct , professional accountability and responsibility, misconduct
- Differences between professions and importance of team efforts
- Cultural issues in the healthcare environment

TEXT BOOKS: Faculty to recommend

REFERENCE BOOKS: Faculty to recommend



Department of Optometry

Era University, Lucknow

**Course Outline Effective From:
2023-24**

Name of the Program	B.Sc. (OPTOMETRY)			Year/ Semester:	6th Semester
Course Name	PRACTICE MANAGEMENT	Course Code:	BOT604	Type:	Theory
Credits	02 (L-2, T-0, P-0)			Total Sessions Hours:	30 Hours
Evaluation Spread	Internal Continuous Assessment:	30 Marks	End Term Exam:	70 Marks	
Type of Course	<input type="radio"/> Compulsory	<input checked="" type="radio"/> Core	<input type="radio"/> Creative	<input type="radio"/> Life Skill	
Course Objectives	The objective of this course is to provide knowledge regarding business, accounting, taxation, professional values, and quality and safety aspects of optometry practice management.				
Course Outcomes (CO): <i>After the successful course completion, learners will develop following attributes:</i>					
Course Outcome (CO)	. Understanding the concepts of Business Management and Practice Establishment. Attributes				
CO1	Understanding the concepts of Business Management and Practice Establishment.				
CO2	Analyzing and applying various aspects of Stocking, staffing and business Computerization in running an Optometry Clinic, Optical outlet or business.				
CO3	Understanding, Analyzing and Applying various aspects of Taxation and Taxation Planning.				
CO4	Applying professional values, ethics and Confidentiality in the workplace establishment.				
CO5	Understanding, Analyzing and Applying various aspects of professionalism, integrity, objectivity, personal values, teamwork, etc. in running a business efficiently.				
Pedagogy	Interactive, discussion-bases, student-centered, presentation.				
Internal Evaluation Mode	Mid-term Examination: 12 Marks Class test((Participation): 04 Marks Class Presentation : 04 Marks Assignments/Presentation: 04 Marks Attendance: 04 Marks Bed side Behavior: 02 Marks				
Session Details	Topic			Hours	Mapped CO

Unit 1	<ul style="list-style-type: none"> • Business Management: • Practice establishment and development • Stock control and costing • Staffing and staff relations • Business computerization 	8	CO1
Unit 2	<ul style="list-style-type: none"> • Accounting Principles • Sources of finance • Bookkeeping and cash flow 	4	CO2
Unit 3	<ul style="list-style-type: none"> • Taxation and taxation planning 	2	CO3
Unit 4	<ul style="list-style-type: none"> • Professionalism and Values • Professional values- Integrity, Objectivity, • Professional competence and due care, Confidentiality. 	6	CO4
Unit 5	<ul style="list-style-type: none"> • Personal values- ethical or moral values • Attitude and behaviour- professional behaviour, treating people equally • Code of conduct , professional accountability and responsibility, misconduct • Differences between professions and importance of team efforts • Cultural issues in the healthcare environment 	10	CO5
CO-PO and PSO Mapping			

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	3	-	2	1	-	-	-	1	1	-	1	2	1
CO2	1	3	-	2	-	-	-	-	1	-	-	1	2	1
CO3	2	3	-	2	-	-	-	-	1	1	-	1	2	1
CO4	1	3	-	1	-	-	-	-	1	-	-	1	2	1
CO5	2	3	-	1	-	-	-	-	1	-	-	1	2	1

Strong contribution-3, Average contribution-2, Low contribution-1,

Suggested Readings:

Text- Books

Reference Books

1 Faculty to recommend
* **Latest editions of all the suggested books are recommended**

Recapitulation & Examination Pattern

Internal Continuous Assessment:

Component	Marks	Pattern
Mid Semester :	12	Section A: Contains 10 MCQs/Fill in the blanks/One Word Answer/ Each question carries 04 Marks. Section B: Contains 02 Short questions out of which 03 questions are to be attempted. Each question carries 02 Marks. Section C: Contains 01 descriptive questions are to be attempted & Question carries 04 Marks
Class Test :	04	Contains 05 descriptive questions. Each question carries 04 Mark.
Class Presentation :	04	Contains 10 multiple choice questions. Each question carries 1 Marks.
Assignment/ Presentation :	04	Assignment to be made on topics and instruction given by subject teacher
Attendance :	04	As per policy
Bed side Behavior :	02	As per policy
TOTAL	30	

**Course Created by:- Jamshed Ali
Assistant Professor**

Signature :

**Course Approved by:- Mr. Sunil Kumar Gupta
Asst. Prof. & Icharge**

Signature :

SIXTH SEMESTER

COURSE/ PAPER -OCCUPATIONAL OPTOMETRY

PAPER CODE- BOT-605

L	T	P	C
2	-	-	2

Learning objective-The objective of this course is to provide knowledge of general aspects of occupational health, Visual demand in various jobs, task analyzing method, visual standards for various jobs, occupational hazards and remedial aspects.

Learning Outcome-At the end of the course the students will be knowledgeable in visual requirements of jobs, effects of physical, chemical and other hazards on eye and vision; and will also be able to prescribe suitable corrective lenses and eye protective glasses.

UNIT 1

Introduction to Occupational health, hygiene and safety, international bodies like ILO, WHO, National bodies etc. - Acts and Rules - Factories Act, WCA, ESI Act.

UNIT 2

Electromagnetic Radiation and its effects on Eye

Light – Definitions and units, Sources, advantages and disadvantages, standards

Color – Definition, Color theory, Color coding, Color defects, Color Vision tests

UNIT 3

Occupational hazards and preventive/protective methods

Task Analysis

UNIT 4

Industrial Vision Screening – Modified clinical method and Industrial Vision test

Vision Standards – Railways, Roadways, Airlines

UNIT 5

- Visual Display Units

5

- Contact lens and work

TEXT BOOKS:

- 2 PP Santanam, R Krishnakumar, Monica R. Dr. Santanam's text book of Occupational optometry. 1st edition, Published by Elite School of optometry , unit of Medical Research Foundation, Chennai, India , 2015
- 3 R V North: Work and the eye, Second edition, Butterworth Heinemann, 2001

REFERENCE BOOKS:

1. G W Good: Occupational Vision Manual available in the following website: www.aoa.org
2. N.A. Smith: Lighting for Occupational Optometry, HHSC Handbook Series, Safchem Services, 1999
3. J Anshel: Visual Ergonomics Handbook, CRC Press, 2005
4. G Carson, S Doshi, W Harvey: Eye Essentials: Environmental & Occupational Optometry, Butterworth-Heinemann, 2008

Name of the Program	Bachelor of optometry			Year/Semester:	6TH	
Course Name	OCCUPATIONAL OPTOMETRY	Course Code:	BOT-605	Type: Semester		
Credits	30			Total Sessions Hours:	30	
Evaluation Spread	Internal Contineuous Assessment:			End Term Exam:		
Type of Course	<input type="radio"/> Compulsory	<input checked="" type="radio"/> Core	<input type="radio"/> Creative	<input type="radio"/> Life Skill		
Course Objectives	The objective of this course is to provide knowledge of general aspects of occupational health, Visual demand in various jobs, task analyzing method, visual standards for various jobs, occupational hazards and remedial aspects.					
Course Outcomes(CO): <i>After the successful course completion, learners will develop following attributes:</i>						
Course Outcome(CO)						
CO1	Understanding the concept of Introduction to Occupational health, hygiene and safety, and , international bodies like ILO, WHO, Acts and Rules - Factories Act					
CO2	To know about Electromagnetic Radiation and how does it effects on Eye. Unit and source of light, and about the color theory and coding.					
CO3	To understand different types of Occupational hazards and what are preventive/protective methods.					
CO4	To understand Modified clinical method and Industrial Vision test, and what are visual standards of – Railways, Roadways, Airlines					
CO5	To understand the Visual Display Units which we sue in occupational optometry and occupational Contact lens and how it works					
Pedagogy	Flipped classroom Class Rotation (Whole and Group) Differentiated Learning Contextual Learning					
Internal Evaluatio Mode	Class test+ weekly assignment Attendance Tutorial Role play Active learning					
UnitNO.	Title of the unit	Topic of unit			Hours	Ma ppe d CO
		7				

Unit1	Introduction	<ul style="list-style-type: none"> - Occupational health, hygiene and safety, - international bodies like ILO, WHO, - National bodies etc. - Acts and Rules - Factories Act, WCA, ESI Act. 	6	CO1
Unit2	Electromagnetic Radiation Light Color	<ul style="list-style-type: none"> - Electromagnetic Radiation and its effects on Eye - Definitions and units, Sources, advantages and disadvantages, standards - Definition, Color theory, Color coding, Color defects, Color Vision tests 	6	CO2
Unit3	Occupational hazards Task Analysis	<ul style="list-style-type: none"> - Occupational hazards and preventive/protective methods 	6	CO3
Unit4	Industrial Vision Screening Vision Standards	<ul style="list-style-type: none"> - Modified clinical method and Industrial Vision test. - Railways, Roadways, Airlines 	6	CO4
Unit 5	Visual Display Units Contact lens and work	<ul style="list-style-type: none"> - Visual Display Units - Contact lens and work 	6	CO5

CO-PO and PSO Mapping														
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	1	3	1	2	-	-	-	1	2	1	2	-	1	2
CO2	2	3	2	2	-	-	-	1	2	2	1	-	2	2
CO3	1	3	1	2	-	-	-	1	2	1	2	-	1	2
CO4	2	3	1	2	-	-	-	1	2	2	3	-	2	2

Strong contribution-3, Average contribution-2, Low contribution-1,

Suggested Readings:

Text-Books	<p>9. PP Santanam, R Krishnakumar, Monica R. Dr. Santanam's text book of Occupational optometry. 1st edition, Published by Elite School of optometry , unit of Medical Research Foundation, Chennai, India , 2015</p> <p>10. R V North: Work and the eye, Second edition, Butterworth Heinemann, 2001</p>
Reference Books	<p>5. G W Good: Occupational Vision Manual available in the following website: www.aoa.org</p> <p>6. N.A. Smith: Lighting for Occupational Optometry, HHSC Handbook Series, Safchem Services, 1999</p> <p>7. J Anshel: Visual Ergonomics Handbook, CRC Press, 2005</p> <p>8. G Carson, S Doshi, W Harvey: Eye Essentials: Environmental & Occupational Optometry, Butterworth-Heinemann, 2008</p>
Para Text	<p>Unit1:</p> <p>Unit2:</p> <p>Unit3:</p> <p>Unit4:</p> <p>Unite5;</p>

Recapitulation & Examination Pattern

Internal Continuous Assessment:

Component	Marks	Pattern
Mid Semester	12	12 marks theory(including MCQ, SHORT NOTE , LONG QUESTION)
Class Test	5	Short note
Online Test/Objective Test	5	MCQ
Assignment/Presentation	4	Assignment(2 MARKS) +Presentation(2MARKS)
Attendance	4	65-75 % 1 MARKS 75-85 2 MARKS 85-95 3 MARKS MORE THAN 95 % 4 MARKS
Total Marks	30	

Course created by: Mr. Vishwdeep Mishra (AP)

Signature:

Approved by:

Signature:

SIXTH SEMESTER

COURSE/ PAPER-OPTOMETRY LAW AND ETHICS

PAPER CODE- BOT-606

L	T	P	C
2	-	-	2

Learning Objective- To enable the students to have ample knowledge regarding the medical laws and ethics regulating medical practice.

Learning Outcome-At the end of the course, the students will be competent enough to understand the legal framework increasing awareness about the rights of patients in a medical setup.

UNIT 1

- Medical ethics - Definition - Goal - Scope
- Introduction to Code of conduct

UNIT 2

- Basic principles of medical ethics –Confidentiality
- Malpractice and negligence - Rational and irrational drug therapy

UNIT 3

- Autonomy and informed consent - Right of patients
- Care of the terminally ill- Euthanasia

UNIT 4

- Organ transplantation
- Medico legal aspects of medical records –Medico legal case and type- Records and document related to MLC - ownership of medical records - Confidentiality Privilege communication - Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects.

UNIT 5

- Professional Indemnity insurance policy
- Development of standardized protocol to avoid near miss or sentinel events
- Obtaining an informed consent.

TEXT BOOKS: Faculty to recommend

REFERENCE BOOKS: Faculty to recommend

Name of the Program	Bachelor of optometry			Year/Semester:	6TH
Course Name	OPTOMETR Y LAW AND ETHICS	Course Code:	BOT- 606	Type: Semester	
Credits	30			Total Sessions Hours:	30
Evaluation Spread	Internal Contineuous Assessment:			End Term Exam:	
Type of Course	<input type="radio"/> Compulsory	<input checked="" type="radio"/> Core	<input type="radio"/> Creative	<input type="radio"/> Life Skill	
Course Objectives	Legal and ethical considerations are firmly believed to be an integral part of medical practice in planning patient care. Advances in medical sciences, growing sophistication of the modern society's legal framework, increasing awareness of human rights and changing moral principles of the community at large, now result in frequent occurrences of healthcare professionals being caught in dilemmas over aspects arising from daily practice.				
Course Outcomes(CO): <i>After the successful course completion, learners will develop following attributes:</i>					
Course Outcome(CO)					
CO1	Students will abide by the rule and regulation of the medicine and have abundant knowledge on professional attitude and communication among the colleague and patients.				
CO2	Students will abide by the rule and regulation of the medicine and have abundant knowledge on professional attitude and communication among the colleague and patients.				
CO3	Students will abide by the rule and regulation of the medicine and have abundant knowledge on professional attitude and communication among the colleague and patients.				
CO4	Students will abide by the rule and regulation of the medicine and have abundant knowledge on professional attitude and communication among the colleague and patients..				
CO5	Students will abide by the rule and regulation of the medicine and have abundant knowledge on professional attitude and communication among the colleague and patients.				
Pedagogy	Flipped classroom Class Rotation (Whole and Group) Differentiated Learning Contextual Learning				
Internal Evaluation Mode	Class test+ weekly assignment Attendance Tutorial Role play Active learning				
UnitNO.	Title of the unit	Topic of unit		Hours	Ma ppe d CO
		1			

Unit 1	MEDICAL ETHICS	<ol style="list-style-type: none"> 1. Medical ethics, Definition, Goal, Scope. 2. Introduction to Code of conduct. 3. Basic principles of medical ethics, Confidentiality. 4. Malpractice and negligence, Rational and irrational drug therapy. 	6	CO1
Unit 2	RIGHT OF PATIENT	<ol style="list-style-type: none"> 1. Autonomy and informed consent. 2. Right of patients Care of the terminally ill 3. Euthanasia Organ transplantation, ethics and law 	6	CO2
Unit 3	MEDICO LEGAL ASPECTS	<ol style="list-style-type: none"> 1. Medico legal aspects of medical records, Medico legal case and type. 2. Records and document related to MLC ownership of medical records. 3. Confidentiality Privilege communication, Release of medical information. 4. Unauthorized disclosure, retention of medical records, other various aspects 	6	CO3
Unit 4	PROFESSIONAL INDEMNITY INSURANCE POLICY	<ol style="list-style-type: none"> 1. Professional Indemnity insurance policy. 2. Development of standardized protocol to avoid near miss or sentinel events obtaining an informed consent. 	6	CO4
Unit 5	EMERGENCY CARE AND LIFE SUPPORT	<ol style="list-style-type: none"> 1. Basics of emergency care and life support skill. 2. Vital signs and primary assessment, Basic emergency care, first aid and triage. 3. Ventilations including use of bag-valve-masks (BVMs), Choking, rescue breathing methods. 4. One and Two rescuer CPR, using an AED (Automated external defibrillator), Managing an emergency including moving a patient. 	6	CO5

CO-PO and PSO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	-	-	-	-	-	2	-	2	-	-	-	-	-	2
CO2	-	-	-	-	-	2	-	-	-	-	-	-	-	2
CO3	-	-	-	-	-	2	-	1	-	-	-	-	-	2
CO4	-	-	-	-	-	2	2	-	-	-	-	-	-	2

Strong contribution-3, Average contribution-2, Low contribution-1,

Suggested Readings:

Text-Books

Reference Books	<ol style="list-style-type: none"> 9. 1. Kennedy I, Grubb A. Medical law. London: Butterworths 2000. 10. 2. Jackson E. Medical law: text, cases, and materials. Oxford University Press. 11. 3. Recent Trends in Medical Imaging (CT, MRI and USG).
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	<p>12. 4. Bontrager KL, Lampugnano J. Bontrager's Handbook of Radiographic Positioning and Techniques-E-BOOK. Elsevier Health Sciences; 2017 Feb 10.</p> <p>13. 5. Frank ED, Long BW, Smith BJ. Merrill's Atlas of Radiographic Positioning and Procedures-E-Book. Elsevier Health Sciences; 2013 Aug 13.</p>
Para Text	<p>Unit1:</p> <p>Unit2:</p> <p>Unit3:</p> <p>Unit4:</p> <p>Unit5;</p>

Recapitulation & Examination Pattern

Internal Continuous Assessment:

Component	Marks	Pattern
Mid Semester	12	12 marks theory(including MCQ, SHORT NOTE , LONG QUESTION)
Class Test	5	Short note
Online Test/Objective Test	5	MCQ
Assignment/Presentation	4	Assignment(2 MARKS) +Presentation(2MARKS)
Attendance	4	65-75 % 1 MARKS 75-85 2 MARKS 85-95 3 MARKS MORE THAN 95 % 4 MARKS
Total Marks	30	

Course created by: Jamshed ali
Signature:

Approved by:
Signature:

SIXTH SEMESTER

COURSE/ PAPER-PRACTICAL-CLINICAL OPTOMETRY --V

PAPER CODE- BOP-601

Credit: 4

The course is the final series of five directed clinical courses. The student will complete the clinical training by practicing all the skills learned in classroom and clinical instruction. Practical aspects of Binocular vision II, public health & community optometry, and occupational optometry will be covered under the studentship.

Module: 1

Unit of competency: Contact lens II

- The ability to select and fit the most appropriate lens for the planned use
- The ability to Identify and manage after care
- The ability to understand the techniques used in fitting complex contact lenses and advises patients requiring complex visual corrections.

Module: I

Unit of competency: Pediatric and geriatric optometry:

Pediatric:

- 1.Assess ocular health and systemic health conditions.
- Identify risk factor of systemic diseases based on ocular findings.
- Assess VA, ocular motility,pupil, Objective and subjective refraction.
- 4.Pediatric prescribing decision and their purpose. E.g. early onset myopia
- investigation and management of children presenting with anomalies of binocular vision.

Geriatric:

- 1.Evaluate the functional status of the eye, vision system and account special demands and needs.
- 2.Assess ocular health and systemic health conditions.
- 3.Detect and diagnose ocular abnormalities and disease
- 4.Counsel and educate the patients regarding their visual, ocular and related systemic health care status including recommendations for treatment, management and future care.

Module III:**Unit of competency: Squint Evaluation:**

- The ability to assess binocular status using objective and subjective tests
- The ability to investigate and manage a patient presenting with heterophoria or heterotropia.
- The ability to manage a patient presenting with an incomitant deviations
- Demonstration of following Orthoptic instruments/methods and their uses –
- Orthoptic Investigative & Therapeutic Procedure.
- Cover and uncover test: Differentiate from phoria and tropia.
- Measurement of angle of deviation: Subjectively(Synoptophore) and objectively (PBCT/ Modified Krimsky)

Module: IV :Vision Therapy:

The ability to understand different eye exercise procedure

Restoration of vision and maintain ocular alignments by means of different eye exercise

Module V :Comprehensive eye examination**Evaluation Scheme:**

Attendance	Record file	Written test	Viva	Practical	Total
10	20	20	30	20	100

Text book/ Reference Book

- Grosvenor, Primary Care Optometry , Butterworth-Heinemann,
- A K Khurana: Comprehensive Ophthalmology, 4th edition, New age international (p) Ltd. Publishers, New Delhi, 2007
- D B. Elliott :Clinical Procedures in Primary Eye Care,3rd edition, Butterworth-Heinemann, 2007
- BHVI modules

SIXTH SEMESTER

COURSE/ PAPER -RESEARCH PROJECT 1

PAPER CODE- BOP-603

L	T	P	C
	-	3	2

Team of students will be doing a research project under the guidance of a supervisor (who could be optometrists/vision scientists/ ophthalmologist). Student will get the experience of doing a research in systematic approach – identifying the primary question, literature search, identifying the gaps in the literature, identifying the research question, writing up the research proposal, data collection, data analysis, thesis writing and presentation

Project is spread through sixth to eighth semester.

Practical