

**STUDY & EVALUATION SCHEME**

**OF**

**BACHELOR OF OPTOMETRY (B.OPTOM)**

**[APPLICABLE W.E.F. ACADEMIC SESSION 2017-18 TILL REVISED]**



**TEERTHANKER MAHAVEER UNIVERSITY**

**Delhi Road, Moradabad, Uttar Pradesh**

**244001 Website: [www.tmu.ac.in](http://www.tmu.ac.in)**





## Study and Evaluation Scheme

### B.Optom Semester- I (First Year)

Semester I	S. No.	Course Code	Subject	Periods			Credit	Evaluation Scheme		
				L	T	P		Internal	External	Total
	1	BCO-S- 101	General Anatomy	4	-	-	4	40	60	100
	2	BCO-S-102	General Physiology	4	-	-	4	40	60	100
	3	BCO--S-103	General Bio Chemistry	2	-	-	2	40	60	100
	4	BCO-S-104	Geometrical Optics I	4	-	-	4	40	60	100
	5	BCO-S-105	Nutrition	2	-	-	2	40	60	100
	6	*BCO-S-199	* English Communication & Soft Skills – I	3	-	2	4	50	50	100
	7	BCO-S-151	General Anatomy Practical	-	-	2	1	50	50	100
	8	BCO-S-152	General Physiology Practical	-	-	2	1	50	50	100
	9	BCO-S-153	General Bio Chemistry Practical	-	-	2	1	50	50	100
	10	BCO-S-154	Geometrical Optics-I Practical	-	-	2	1	50	50	100
	Total			19	10		24	450	550	1000

- ❖ Seven Lectures to be assigned for Group discussion/Seminar /library
- ❖ Subject marked with asterisk (\*) is non-core paper.





## Study and Evaluation Scheme

### B.Optom Semester- II (First Year)

S.NO	Course Code	Subject	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BCO-S-201	Ocular Anatomy	3	-	-	3	40	60	100
2	BCO-S-202	Ocular Physiology	3	-	-	3	40	60	100
3	BCO-S-203	Ocular biochemistry	2	-	-	2	40	60	100
4	BCO-S-204	Physical Optics	2	-	-	2	40	60	100
5	BCO-S-205	Geometrical Optics II	2	-	-	2	40	60	100
6	BCO-S-206	Computer Fundamentals, Internet, & Ms-Office	3	-	-	3	40	60	100
7	*BCO-S-299	*English Communication & Soft Skills – II	3	-	2	4	50	50	100
8	BCO-S- 251	Ocular Anatomy Practical	-	-	2	1	50	50	100
9	BCO-S- 252	Ocular Physiology Practical	-	-	2	1	50	50	100
10	BCO-S- 253	Ocular Biochemistry Practical	-	-	2	1	50	50	100
11	BCO-S- 254	Geometrical Optics II Practical	-	-	2	1	50	50	100
12	BCO-S- 255	Computer Fundamentals, Internet, & Ms-Office Practical	-	-	2	1	50	50	100
13	BCO-S-256	Hospital Posting	-	-	6	3	50	50	100
Total			18	18	27	590	710	1300	

❖ Subject marked with asterisk (\*) is non-core paper.





**Study and Evaluation Scheme**  
**B.Optom Semester- III (Second Year)**

**Semester III**

S.N O	Course Code	Subject	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BCO-S- 301	Ocular Microbiology	2	-	-	2	40	60	100
2	BSC-S-302	Visual Optics- I	2	-	-	2	40	60	100
3	BCO-S-303	Optometric Optics – I	2	-	-	2	40	60	100
4	BCO-S-304	Optometric Instruments	2	-	-	2	40	60	100
5	BCO-S- 305	Ocular Diseases – I	3	-	-	3	40	60	100
6	BCO-S- 306	Clinical Examination Of Visual System	2	-	-	2	40	60	100
7	BCO-S- 307	Indian Medicine and Telemedicine	2	-	-	2	40	60	100
8	BCO-S-308	Environmental Sciences	4	-	-	4	40	60	100
9	BCO-S-399	English Communication & Soft Skills-III	3	-	2	4	50	50	100
10	BCO-S-351	Optometric Optics –I Practical	-	-	2	1	50	50	100
11	BCO-S-352	Optometric Instruments Practical	-	-	2	1	50	50	100
12	BCO-S-353	Ocular Disease-I Practical	-	-	2	1	50	50	100
13	BCO-S-354	Hospital Posting	-	-	6	3	50	50	100
<b>TOTAL</b>			<b>22</b>	<b>-</b>	<b>14</b>	<b>29</b>	<b>570</b>	<b>730</b>	<b>1300</b>





**Study and Evaluation Scheme**  
**B.Optom Semester- IV (Second Year)**

S.N O	Course Code	Subject	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BCO-S-401	Optometric Optics –II & Dispensing Optics	4	-	-	4	40	60	100
2	BCO-S-402	Visual Optics II	3	-	-	3	40	60	100
3	BCO-S-403	Ocular Disease – II	5	-	-	5	40	60	100
4	BCO-S-404	Pathology	2	-	-	2	40	60	100
5	BCO-S-405	Basic And Ocular Pharmacology	3	-	-	3	40	60	100
6	BCO-S-406	Introduction To Quality And Patient Safety	2	-	-	2	40	60	100
7	BCO-S-407	Medical Psychology	2	-	-	2	40	60	100
8	BCO-S-499	English Communication & Soft Skills-IV	3	-	2	4	50	50	100
9	BCO-S-451	Optometric Optics –II & Dispensing Practical	-	-	2	1	50	50	100
10	BCO-S-452	Hospital Posting	-	-	6	3	50	50	100
<b>TOTAL</b>			<b>24</b>		<b>10</b>	<b>29</b>	<b>430</b>	<b>570</b>	<b>1000</b>

❖ Two Lectures to be assigned for Seminar / library





**Study and Evaluation Scheme**  
**B.Optom Semester- V (Third Year)**

Semester V	S.N O.	Course Code	Subject	Periods			Credit	Evaluation Scheme		
				L	T	P		Intern al	External	Total
	1	BCO-S-501	Contact Lens – I	4	-	-	4	40	60	100
	2	BCO-S-502	Low Vision Care	3	-	-	3	40	60	100
	3	BCO-S- 503	Geriatric Optometry & Pediatric Optometry	3	-	-	3	40	60	100
	4	BCO-S- 504	Binocular Vision – I	3	-	-	3	40	60	100
	5	BCO-S- 505	Systemic Disease	3	-	-	3	40	60	100
	6	BCO-S-506	Research Methodology & Biostatistics	2	-	-	2	40	60	100
	7	BCO-S- 551	Contact Lens – I Practical	-	-	2	1	50	50	100
	8	BCO-S- 552	Low Vision Care Practical	-	-	2	1	50	50	100
	9	BCO-S-553	Geriatric Optometry & Pediatric Optometry Practical	-	-	2	1	50	50	100
	10	BCO-S-554	Hospital Posting	-	-	6	3	50	50	100
	TOTAL			18		12	24	440	560	1000

❖ Six Lectures to be assigned for Group Discussion/Seminar /library





**Study and Evaluation Scheme**  
**B.Optom Semester- VI (Third Year)**

Semester VI	S.No.	Course Code	Subject	Periods			Credit	Evaluation Scheme		
				L	T	P		Internal	External	Total
	1	BCO-S- 601	Contact Lens – II	3	-	-	3	40	60	100
	2	BCO-S- 602	Binocular Vision – II	3	-	-	3	40	60	100
	3	BCO-S- 603	Public Health And Community Optometry	2	-	-	2	40	60	100
	4	BCO-S- 604	Practice Management	2	-	-	2	40	60	100
	5	BCO-S- 605	Occupational Optometry	2	-	-	2	40	60	100
	6	BCO-S- 606	Medical Law And Ethics	2	-	-	2	40	60	100
	7	BCO-S- 607	Research Project 1	-	-	4	2	50	50	100
	8	BCO-S- 651	Contact Lens – II Practical	-	-	2	1	50	50	100
	9	BCO-S- 652	Binocular Vision – II Practical	-	-	2	1	50	50	100
	10	BCO-S- 653	Hospital Posting	-	-	6	3	50	50	100
	<b>TOTAL</b>			14		14	21	440	560	1000

- ❖ Eight Lectures to be assigned for Group Discussion/Seminar / library





**Study and Evaluation Scheme**  
**B.Optom Semester- VII (Fourth Year)**

S.NO	CODE	COURSE	L	T	P	C
1	BCO-S-701	INTERNSHIP-1	0	0	40	20
		TOTAL	0	0	40	20





**Study and Evaluation Scheme**  
**B.Optom Semester- VIII (Fourth Year)**

S.NO	CODE	COURSE	L	T	P	C
1	BCO-S-801	INTERNSHIP-2	0	0	38	19
2	BCO-S-802	RESEARCH PROJECT VIVA	0	0	2	1
		TOTAL	0	0	40	20







# Study & Evaluation Scheme Of

## Bachelor of Optometry

[Applicable w.e.f. Academic Session - 2019-20 till revised]  
[As per CBCS guidelines given by UGC]



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## Study & Evaluation Scheme

### Bachelor of Optometry - II Semester

S.NO.	CATEGORY	COURSE CODE	COURSE NAME	PERIODS			CREDITS	EVALUATION SCHEME		
				L	T	P		INTERNAL	EXTERNAL	TOTAL
1	DSC-2	BCO-S-201	Ocular Anatomy	3	-	-	3	40	60	100
2	DSC -3	BCO-S-202	Ocular Physiology	3	-	-	3	40	60	100
3	DSC -4	BCO-S-203	Ocular Bio-Chemistry	3	-	-	3	40	60	100
4	DSC -5	BCO-S-204	Physical Optics	3	-	-	3	40	60	100
5	DSC -6	BCO-S-205	Geometrical Optics II	3	-	-	3	40	60	100
6	SEC-5	BCO-S-206	Computer Fundamentals, Internet & Ms-Office	3	-	-	3	40	60	100
7	AEC-2	TMUGE 201	English Communication -II	2	-	2	3	40	60	100
8	SEC -6	BCO-S-251	Ocular Anatomy - Practical	-	-	2	1	50	50	100
9	SEC -7	BCO-S-252	Ocular Physiology - Practical	-	-	2	1	50	50	100
10	SEC -8	BCO-S-253	Ocular Bio-Chemistry - Practical	-	-	2	1	50	50	100
11	SEC -9	BCO-S-254	Geometrical Optics II Practical	-	-	2	1	50	50	100
12	SEC -10	BCO-S-255	Computer Fundamentals, Internet & Ms-Office Practical	-	-	2	1	50	50	100
13	SEC-11	BCO-S-256	Hospital Posting	-	-	4	2	50	50	100
Total				20		16	28	580	720	1300

Bachelor of Optometry - Syllabus as per CBCS (2019-20)





## Study & Evaluation Scheme

### Bachelor of Optometry - III Semester

S.NO.	CATEGORY	COURSE CODE	COURSE NAME	PERIODS			CREDITS	EVALUATION SCHEME		
				L	T	P		INTERNAL	EXTERNAL	TOTAL
1	DSC-7	BCO-S-301	Ocular Microbiology	2	-	-	2	40	60	100
2	DSC -8	BCO-S-302	Visual Optics- I	2	-	-	2	40	60	100
3	DSC -9	BCO-S-303	Optometric Optics – I	2	-	-	2	40	60	100
4	DSC-10	BCO-S-304	Optometric Instruments	3	-	-	3	40	60	100
5	DSC-11	BCO-S-305	Ocular Diseases – I	3	-	-	3	40	60	100
6	DSC-12	BCO-S-306	Clinical Examination of Visual System	2	-	-	2	40	60	100
7	CC-5	BCO-S- 307	Indian Medicine and Telemedicine	2	-	-	2	40	60	100
8	AEC-3	BCO-S-308	Environmental Sciences	4	-	-	4	40	60	100
9	AEC-4	TMUGE 301	English Communication -III	2	-	2	3	40	60	100
10	SEC-12	BCO-S-351	Optometric Optics –I Practical	-	-	2	1	50	50	100
11	SEC -13	BCO-S-352	Optometric Instruments Practical	-	-	2	1	50	50	100
12	SEC -14	BCO-S-353	Ocular Disease-I Practica	-	-	2	1	50	50	100
13	SEC-15	BCO-S-354	Hospital Posting	-	-	6	3	50	50	100
<b>Total</b>				<b>22</b>	<b>-</b>	<b>14</b>	<b>29</b>	<b>560</b>	<b>740</b>	<b>1300</b>

1.	VAC-1	TMUGS-301	Managing Self	2	1	-	0	50	50	100
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Note: Value added course is an audit course. It is compulsory to pass this course with 45%. However, it will not be added to the overall result.

Bachelor of Optometry - Syllabus as per CBCS (2019-20)





## Study & Evaluation Scheme

### Bachelor of Optometry - IV Semester

S.NO.	CATEGORY	COURSE CODE	COURSE NAME		PERIODS			CREDITS	EVALUATION SCHEME		
					L	T	P		INTERNA L	EXTERNAL	TOTAL
1	DSC-13	BCO-S-401	Optometric Optics –II & Dispensing Optics		4	-	-	4	40	60	100
2	DSC-14	BCO-S-402	Visual Optics II		4	-	-	4	40	60	100
3	DSC-15	BCO-S-403	Ocular Disease – II		3	-	-	3	40	60	100
4	CC-6	BCO-S-404	Pathology		2	-	-	2	40	60	100
5	DSC-16	BCO-S- 405	Basic and Ocular Pharmacology		3	-	-	3	40	60	100
6	AEC-5	BCO-S-406	Introduction to Quality And Patient Safety		2	-	-	2	40	60	100
7	CC-7	BCO-S-407	Medical Psychology		2	-	-	2	40	60	100
8	DSEC-1	BCO-S-408	Discipline Specific Elective Course	Eye Banking	3	-	-	3	40	60	100
		Dry Eye									
9	AEC-6	TMUGE 401	English Communication - IV		2	-	2	3	40	60	100
10	SEC-16	BCO-S-451	Optometric Optics –II & Dispensing Practical		-	-	2	1	50	50	100
11	SEC-17	BCO-S-452	Hospital Posting		-	-	6	3	50	50	100
12	SEC-18	BCO-S-453	Eye Banking-Practical		-	-	2	1	50	50	100
		Dry Eye -Practical									
Total					25		12	31	510	690	1200

1.	VAC-II	TMUGS-401	Managing Work and Others	2	1	-	0	50	50	100
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Note: Value added course is an audit course. It is compulsory to pass this course with 45%. However, it will not be added to the overall result.

Bachelor of Optometry - Syllabus as per CBCS (2019-20)





**Study & Evaluation Scheme**  
**Bachelor of Optometry - V Semester**

S.NO.	CATEGORY	COURSE CODE	COURSE NAME	PERIODS			CREDITS	EVALUATION SCHEME		
				L	T	P		INTERNAL	EXTERNAL	TOTAL
1	DSC-17	BCO-S-501	Contact Lens – I	4	-	-	4	40	60	100
2	DSC-18	BCO-S-502	Low Vision Care	3	-	-	3	40	60	100
3	DSC-19	BCO-S- 503	Geriatric Optometry & Pediatric Optometry	3	-	-	3	40	60	100
4	DSC -20	BCO-S- 504	Binocular Vision – I	3	-	-	3	40	60	100
5	DSC -21	BCO-S- 505	Systemic Disease & the Eye	3	-	-	3	40	60	100
6	CSC-1	BCO-S-506	Research Methodology & Biostatistics	4	-	-	4	40	60	100
7	SEC-19	BCO-S- 551	Contact Lens – I Practical	-	-	2	1	50	50	100
8	SEC -20	BCO-S- 552	Low Vision Care Practical	-	-	2	1	50	50	100
9	SEC -21	BCO-S-553	Geriatric Optometry & Pediatric Optometry Practical	-	-	2	1	50	50	100
10	SEC-22	BCO-S-554	Hospital Posting	-	-	6	3	50	50	100
11		MOOC		-	-	-	2	-	-	100
12		Open Elective					3	As per University Guide line		
Total				22		12	31	480	620	1200

Bachelor of Optometry - Syllabus as per CBCS (2019-20)





**Study & Evaluation Scheme**  
**Bachelor of Optometry - VI Semester**

S.NO.	CATEGORY	COURSE CODE	COURSE NAME	PERIODS			CREDITS	EVALUATION SCHEME		
				L	T	P		INTERNAL	EXTERNAL	TOTAL
1	DSC-22	BCO-S- 601	Contact Lens – II	3	-	-	3	40	60	100
2	DSC-23	BCO-S- 602	Binocular Vision – II	3	-	-	3	40	60	100
3	DSC-24	BCO-S- 603	Public Health And Community Optometry	2	-	-	2	40	60	100
4	CC-8	BCO-S- 604	Practice Management	2	-	-	2	40	60	100
5	DSC -25	BCO-S- 605	Occupational Optometry	2	-	-	2	40	60	100
6	CC-9	BCO-S- 606	Medical Law And Ethics	2	-	-	2	40	60	100
7	SEC-23	BCO-S- 651	Contact Lens – II Practical	-	-	2	1	50	50	100
8	SEC-24	BCO-S- 652	Binocular Vision – II Practical	-	-	2	1	50	50	100
9	SEC-25	BCO-S- 653	Hospital Posting	-	-	6	3	50	50	100
10	SEC-26	BCO-S- 654	Research Project 1	-	-	4	2	50	50	100
Total				14		14	21	440	560	1000

Bachelor of Optometry - Syllabus as per CBCS (2019-20)





**Study & Evaluation Scheme**  
**Bachelor of Optometry - VII Semester (Internship)**

S.NO.	CATEGORY	COURSE CODE	COURSE NAME	PERIODS			CREDITS	EVALUATION SCHEME		
				L	T	P		INTERNAL	EXTERNAL	TOTAL
1	SEC-27	BCO-S-751	Internship-I	-	-	-	20	50	50	100

Bachelor of Optometry - Syllabus as per CBCS (2019-20)





**Study & Evaluation Scheme**  
**Bachelor of Optometry - VIII Semester (Internship)**

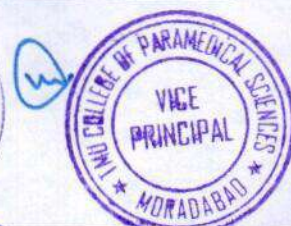
S.NO.	CATEGORY	COURSE CODE	COURSE NAME	PERIODS			CREDITS	EVALUATION SCHEME		
				L	T	P		INTERNAL	EXTERNAL	TOTAL
1	SEC-28	BCO-S-851	Internship-II	-	-	-	10	50	50	100
2	SEC-29	BCO-S-852	Research Project & Viva	-	-	-	10	50	50	100

Bachelor of Optometry - Syllabus as per CBCS (2019-20)





<b>Course Code:</b> BCO-S-104	<b>Discipline Specific Course -1</b> <b>Bachelor of Optometry</b> <b>Semester-I</b> <b>GEOMETRICAL OPTICS-I</b>	L-4 T-0 P-0 C-4
<b>Course Outcomes</b>	<b>On completion of the course, the students will be :</b>	
<b>CO1.</b>	Understanding concepts and theories of light, its nature & properties	
<b>CO2.</b>	Understanding concepts and properties of mirror & lenses.	
<b>CO3.</b>	Identifying various of lens & mirror during practical	
<b>CO4.</b>	Applying formula calculation related to vergence	
<b>Course Content:</b>		
<b>Unit-1:</b>	<b>Nature of light-</b> light as electromagnetic oscillation; speed of light in vacuum and other media, Wave front spherical, elliptical and plane. <b>Reflection and refraction of light-</b> laws of reflection and refraction. Total internal reflection. <b>Refractive index</b> -Its relation with wavelength, Fermat's and Huygen's Principle, Derivation of laws of reflection and refraction (Snell's law) from these principles	8 hrs
<b>Unit-2:</b>	Plane mirror and spherical mirror- convex and concave mirror Reflection by a spherical mirror, paraxial approximation; sign convention Imaging by concave mirror and convex mirror Reflectivity, transmissivity; Snell's Law, Refraction at a plane surface Glass slab	6 hrs
<b>Unit-3:</b>	<b>Definition</b> of crown and flint glasses; materials of high refractive index <b>Prism-</b> Angle of prism; deviation produced by a prism; refractive index of the prism, definition of Prism diopter and application of prism. <b>Dispersion</b> - Angular dispersion; dispersive power	6 hrs
<b>Unit-4:</b>	<b>Vergence of light</b> – convergence and divergence Vergence at a distance formula; effectivity of a refracting surface Image formation by a lens by application of vergence at a distance formula, definitions of front and back vertex powers; equivalent power; first and second principal planes/points; primary and secondary focal planes/points; primary and Secondary focallengths <b>Newton's formula</b> linear magnification; angular magnification	8 hrs





<b>Course Code:</b> BCO-S-105	<b>Core Course -4</b> <b>Bachelor of Optometry</b> <b>Semester-I</b> <b>NUTRITION</b>	<b>L-3</b> <b>T-0</b> <b>P-0</b> <b>C-3</b>
<b>Course Outcomes</b>	<b>On completion of the course, the students will be:</b>	
<b>CO1.</b>	Understanding the concept of nutrition & its importance to eye	
<b>CO2.</b>	Understanding nutritional components & their requirements	
<b>CO3.</b>	Understanding the concept of mal nutrition & its impact on human health	
<b>CO4.</b>	Classifying & Analyzing appropriate nutrients requirement for human body disorder	
<b>Course Content:</b>		
<b>Unit-1:</b>	<b>Introduction:</b> History of Nutrition as a science food groups, RDA Balanced diet, diet planning, assessment of nutritional, Status. <b>Energy:</b> Units of energy and value of food, Measurements Energy expenditure, Total energy/calorie requirement for different age groups and diseases. Limitations of the daily food guide, Safety value	<b>6 hrs</b>
<b>Unit-2:</b>	<b>Proteins:</b> Sources and functions, Essential and non- essential amino acids Incomplete and complete proteins, Supplementary foods. PEM and the eye, Nitrogen balance, Changes in protein requirement <b>Fat:</b> Sources and function, Essential fat, Excess and deficiency, Lipids and the eye. Hyperlipidemia, heart diseases, atherosclerosis.	<b>6 hrs</b>
<b>Unit-3:</b>	<b>Minerals:</b> General functions and sources, Macro and micro minerals associated with the eye. <b>Deficiencies and excess:</b> Ophthalmic complications (e.g. iron, calcium, iodine etc.)	<b>6 hrs</b>
<b>Unit-4:</b>	<b>Vitamin:</b> General functions, and food sources, Vitamin deficiencies and associated eye disorders with particular emphasis to Vitamin A, Promoting sound habits in pregnancy, lactation and infancy. Nutrient with antioxidant. <b>Properties:</b> Digestion of Proteins, carbohydrates & lipids	<b>6 hrs</b>
<b>Unit-5:</b>	Essential amino acids. Miscellaneous Measles and associated eye disorders, low birth weight	<b>6 hrs</b>
<b>Text Books:</b>	1. Frank Eperjesi & Stephen Beatty: Nutrition and the Eye a Practical	





	Approach, Elsevier Butterworth- Heinemann, USA, 2006	
<b>E- Learning site</b>	<ol style="list-style-type: none"> <li>1. <a href="https://alison.com/courses/nutrition">https://alison.com/courses/nutrition</a></li> <li>2. <a href="https://www.coursera.org/browse/health/nutrition">https://www.coursera.org/browse/health/nutrition</a></li> </ol>	

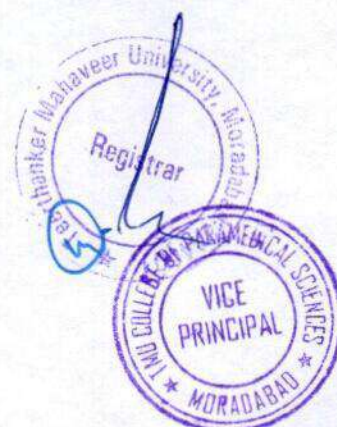
Bachelor of Optometry - Syllabus as per CBCS (2019-20)





Note: Course outcome of following practical's are covered in their respective theory courses

<b>Course Code:</b> BCO-S-154	<b>Skill Enhancement Course -4</b> <b>Bachelor of Optometry</b> <b>Semester-I</b> <b>Geometrical Optics - Practical</b>	<b>L-0</b> <b>T-0</b> <b>P-2</b> <b>C-1</b>
<b>Course Outcomes</b>		
1.	Thick Prism – determination of prism angle and dispersive power; calculation of the refractive index	
2.	Thin Prism – measurement of deviation; calculation of the prism diopter	
3	Image formation by spherical mirrors	
4	Convex lens - power determination using lens gauge, power determination using distant object method; power determination using the Vergence formula	
5	Concave lens – in combination with a convex lens – power determination	





<b>Course Code:</b> BCO-S-203	<b>Discipline Specific Course (DSC)-4</b> <b>Bachelor of Optometry</b> <b>Semester-II</b> <b>OCULAR BIOCHEMISTRY</b>	<b>L-3</b> <b>T-0</b> <b>P-2</b> <b>C-3</b>
<b>Course Outcomes</b>	<b>On completion of the course, the students will be:</b>	
<b>CO1.</b>	Understanding the concepts and theories of Biochemistry	
<b>CO2.</b>	Understanding the chemistry of carbohydrates, proteins, lipids and amino acids related to eye	
<b>CO3.</b>	Understanding the basic metabolism of biomolecules and their energetic related to eye	
<b>CO4.</b>	Understanding the role of Minerals with respect to eyes	
<b>CO5.</b>	Understanding the process of biochemical testing and analyzing the test result.	
<b>Course Content:</b>		
<b>Unit-1:</b>	<ul style="list-style-type: none"> <li>Ocular Biochemistry: Various aspects of the eye, viz., cornea, lens aqueous, vitreous, retina and pigment rhodopsin. (The important chemicals in each and their roles.)</li> </ul>	<b>6 hrs</b>
<b>Unit-2:</b>	<ul style="list-style-type: none"> <li>Metabolism- carbohydrates, proteins, lipids.</li> <li>Glycolysis, TCA Cycle, HMP Shunt, Glycogen metabolism, Sorbitol pathway, Lipid Metabolism, triglyceride and Cholesterol metabolism. Urea- Cycle. Catabolism of Amino Acids</li> </ul>	<b>6 hrs</b>
<b>Unit-3:</b>	<ul style="list-style-type: none"> <li>Hormones metabolic regulation with examples say insulin.</li> <li>Clinical Biochemistry: Blood sugar, urea, creatinine and bilirubin significance of their estimation.</li> </ul>	<b>6 hrs</b>
<b>Unit-4:</b>	<ul style="list-style-type: none"> <li>Technique: Colloidal state, sol. Gel. Emulsion, electrophoresis. pH buffers mode of action, molar and percentage solutions, photometer, colorimeter and spectrometry. Radio isotopes: application in medicine and basic research.</li> </ul>	<b>6 hrs</b>
<b>Unit-5:</b>	<ul style="list-style-type: none"> <li>Minerals--Na, K, Ca, P, Fe, Cu and Se. (requirements, availability and properties) with respect to the Eye.</li> </ul>	<b>6 hrs</b>
<b>Text Books:</b>	1. S. Ramakrishnan: Essentials of biochemistry and ocular biochemistry, Annamalai University Publications, Chidambaram, India, 1992	





<b>Course Code:</b> BCO-S-205	<b>Discipline Specific Course (DSC)-6</b> <b>Bachelor of Optometry</b> <b>Semester-II</b> <b>GEOMETRICAL OPTICS II</b>	<b>L-3</b> <b>T-2</b> <b>P-0</b> <b>C-3</b>
<b>Course Outcomes</b>	<b>On completion of the course, the students will be:</b>	
<b>CO1.</b>	Understanding the concepts of schematic & Reduced Eye and Visual Acuity	
<b>CO2.</b>	Understanding the concept of refractive error and its management options	
<b>CO3.</b>	Understanding the concept of image formation by different types of lenses	
<b>CO4.</b>	Understanding the concept of Accommodation & Presbyopia and different options of presbyopia	
<b>CO5.</b>	Understanding the concepts of Eye with and without crystalline lens	
<b>Course Content:</b>		
<b>Unit-1:</b>	<ul style="list-style-type: none"> <li>Vergence and Vergence techniques</li> <li>schematic and reduced eyes</li> <li>Visual Acuity</li> </ul>	<b>6 hrs</b>
<b>Unit-2:</b>	<ul style="list-style-type: none"> <li>Emmetropia &amp; Ammetropia: Myopia, Hypermetropia, Astigmatism</li> <li>Spherical Ammetropia correction</li> <li>Aperture stop: Entrance and Exit pupil</li> </ul>	<b>6 hrs</b>
<b>Unit-3:</b>	<ul style="list-style-type: none"> <li>Vertex distance and effective power,</li> <li>Dioptric power of the spectacle, to calculate the Dioptric power,</li> <li>angular magnification of spectacles in Aphakia</li> <li>Aperture stops- entrance and exit pupils</li> <li>Retinal image</li> </ul>	<b>6 hrs</b>
<b>Unit-4:</b>	<ul style="list-style-type: none"> <li>Accommodation, Accommodation formulae &amp; its calculations</li> <li>Depth of field &amp; depth of focus</li> <li>Presbyopia &amp; its optical management</li> </ul>	<b>6 hrs</b>
<b>Unit-5:</b>	<ul style="list-style-type: none"> <li>Aphakia, its optics &amp; optical management</li> <li>Pseudophakia &amp; its optical management</li> </ul>	<b>6 hrs</b>
<b>Text Books:</b>	1. Tunnaclyffe A. H, Hirst J. G, Optics, The association of British Dispensing Opticians, London, U.K., 1990. 2. Pedrotti L. S, Pedrotti Sr. F. L, Optics and Vision, Prentice Hall, New Jersey, USA, 1998.	





Note: Course outcome of following practical's are covered in their respective theory courses

<b>Course Code:</b> BCO-S-253	<b>Skill Enhancement Course (SEC) -7</b> <b>Bachelor of Optometry</b> <b>Semester-II</b> <b>Ocular Biochemistry - Practical</b>	<b>L-0</b> <b>T-0</b> <b>P-2</b> <b>C-1</b>
<b>Course Outcomes</b>		
<b>1.</b>	Quantitative analysis	
<b>2</b>	Abnormal constituents in urine, sugar proteins, ketones, blood and bile salts.	
<b>3</b>	Techniques of detection of abnormal constituents of urine:	
<b>4</b>	Electrophoresis  a. Chromatography, Preparation of normal, molar and percentage solutions. b. Preparation of buffers, pHdetermination	
<b>5</b>	Electrophoresis  c. Chromatography, Preparation of normal, molar and percentage solutions. d. Preparation of buffers, pHdetermination	
<b>6</b>	Demonstration  e. Estimation of blood cholesterol Estimation of alkaline phosphatase. f. Salivary amylase (effect of pH, etc) Milk analysis	





Note: Course outcome of following practical's are covered in their respective theory courses

<u>Course Code:</u> BCO-S-254	<b>Skill Enhancement Course (SEC) -8</b> <b>Bachelor of Optometry</b> <b>Semester-II</b> <b>Geometrical Optics-II - Practical</b>	<b>L-0</b> <b>T-0</b> <b>P-2</b> <b>C-1</b>
<b>Course Outcomes</b>		
<b>1.</b>	Construction of a table top telescope – all three types of telescopes.	
<b>2</b>	Construction of a tabletop microscope	
<b>3</b>	Imaging by a cylindrical lens – relationship between cylinder axis and image orientation	
<b>4</b>	Imaging by two cylinders in contact – determination of the position of CLC; verification of CLC using a spherical lens with power equal to the spherical equivalent; orientations and position of the line images and their relation to the cylinders' powers and orientations	
<b>5</b>	Imaging by two cylinders in contact – determination of the position of CLC; verification of CLC using a spherical lens with power equal to the spherical equivalent; orientations and position of the line images and their relation to the cylinders' powers and orientations	
<b>6</b>	Imaging by a spherocylindrical lens – sphere and cylinder in contact – determination of the position of CLC; verification of CLC using a spherical lens with power equal to the spherical equivalent; orientations and position of the line images and their relation to the cylinder's power and orientation	





<b>Course Code:</b> <b>BCO-S-301</b>	<b>Discipline Specific Course (DSC) -7</b> <b>Bachelor of Optometry</b> <b>Semester-III</b> <b>Ocular Microbiology</b>	<b>L-2</b> <b>T-0</b> <b>P-0</b> <b>C-2</b>
<b>Course Outcomes</b>	<b>On completion of the course, the students will be:</b>	
<b>CO1.</b>	Understanding about the characteristics of bacteria, viruses, fungi and parasites.	
<b>CO2.</b>	Understanding of the principles of sterilization and disinfection in hospital and ophthalmic practice.	
<b>CO3.</b>	Understanding of the pathogenesis of the diseases caused by the organisms in the human body with particular reference to the eye infections.	
<b>CO4.</b>	Understanding of basic principles of diagnostic ocular Microbiology.	
<b>CO5.</b>	Understanding about the characteristics of bacteria, viruses, fungi and parasites.	
<b>Course Content:</b>		
<b>Unit-1:</b>	Morphology and principles of cultivating bacteria	<b>4 hrs</b>
<b>Unit-2:</b>	Sterilization and disinfections used in laboratory and hospital practice	<b>4 hrs</b>
<b>Unit-3:</b>	Common bacterial infections of the eye.	<b>5 hrs</b>
<b>Unit-4:</b>	Common fungal infections of the eye	<b>5 hrs</b>
<b>Unit-5:</b>	Common viral infections of the eye. Common parasitic infections of the eye.	<b>6 hrs</b>
<b>Text Books:</b>	1. Burton g.r.w: Microbiology for the Health Sciences, third edition, J.P. Lippincott Co., St. Louis, 1988.	
<b>Reference Books:</b>	1. KJ Ryan, CG Ray: Sherris Medical Microbiology- An Introduction to infectious Diseases, fourth edition, McGRAW HILL Publisher, New Delhi, 1994 MACKIE & McCartney Practical Medical Microbiology  2. Sydney m. Finegold & ellenjo baron: Diagnostic Microbiology (DM)5	
<b>E-Learning site</b>	<a href="https://www.narayananethralaya.org/ocular-microbiology/">https://www.narayananethralaya.org/ocular-microbiology/</a>	



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<b>Course Code:</b> BCO-S-306	<b>Discipline Specific Course (DSC) -12</b> <b>Bachelor of Optometry</b> <b>Semester-III</b> <b>Clinical examination of visual system</b>	<b>L-2</b> <b>T-0</b> <b>P-0</b> <b>C-2</b>
<b>Course Outcomes</b>	<b>On completion of the course, the students will be:</b>	
<b>CO1.</b>	Understanding about the process of history taking and its clinical importance	
<b>CO2.</b>	Understanding about various clinical examination test available	
<b>CO3.</b>	Analyzing the importance of pupillary examination in the field of optometry	
<b>CO4.</b>	Applying all the theoretical knowledge on practical field	
<b>CO5.</b>	Understanding about the process of history taking and its clinical importance	
<b>Course Content:</b>		
<b>Unit-1:</b>	<ul style="list-style-type: none"> <li>Historytaking</li> <li>Visual acuityestimation</li> <li>Extraocular motility, Cover teat, Alternating covertest</li> <li>Hirschberg test, Modified Krimsky</li> </ul>	<b>4 hrs</b>
<b>Unit-2:</b>	<ul style="list-style-type: none"> <li>PupilsExamination</li> <li>MaddoxRod</li> <li>VanHerrick</li> <li>External examination of the eye, LidEversion</li> </ul>	<b>4 hrs</b>
<b>Unit-3:</b>	<ul style="list-style-type: none"> <li>Schirmer's, TBUT, tear meniscus level, NITBUT(keratometer),</li> <li>ColorVision</li> <li>Stereopsis</li> <li>Confrontationtest</li> </ul>	<b>5 hrs</b>
<b>Unit-4:</b>	<ul style="list-style-type: none"> <li>Photo stress test</li> <li>Slit lamp biomicroscopy</li> <li>Ophthalmoscopy</li> <li>Tonometry</li> </ul>	<b>5 hrs</b>
<b>Unit-5:</b>	<ul style="list-style-type: none"> <li>ROPLAS</li> <li>Amsler test</li> <li>Contrast sensitivity functiontest</li> <li>Saccades and pursuittest</li> </ul>	<b>6 hrs</b>
<b>Text Books:</b>	T Grosvenor: Primary Care Optometry, 5th edition, Butterworth-	





<b>Course Code:</b> BCO-S-307	<b>Core Course (CC) -5</b> <b>Bachelor of Optometry</b> <b>Semester-III</b> <b>Indian Medicine and Telemedicine</b>	<b>L-2</b> <b>T-0</b> <b>P-0</b> <b>C-2</b>
<b>Course Outcomes</b>	<b>On completion of the course, the students will be:</b>	
<b>CO1.</b>	Understanding the concept of Indian traditional medicine.	
<b>CO2.</b>	Understanding the concept of Telemedicine.	
<b>CO3.</b>	Applying concept of PHS.	
<b>CO4.</b>	Understanding the concept of demography and vital-statistics	
<b>CO5.</b>	Understanding the concept of census, and its impact.	
<b>Course Content:</b>		
<b>Unit-1:</b>	<ul style="list-style-type: none"> <li>• Introduction to healthcare delivery system</li> <li>• Healthcare delivery system in India at primary, secondary and tertiary care</li> <li>• Community participation in health care delivery system</li> <li>• Health system in developed countries</li> <li>• Private Sector</li> <li>• National Health Mission</li> <li>• National Health Policy</li> <li>• Issues in Health Care Delivery System in India</li> </ul>	<b>4 hrs</b>
<b>Unit-2:</b>	<ul style="list-style-type: none"> <li>• National Health Programme-Background objectives, action plan, targets, operations, achievements and constraints in various National Health Programme.</li> </ul>	<b>4 hrs</b>
<b>Unit-3:</b>	<ul style="list-style-type: none"> <li>• Introduction to AYUSH system of medicine</li> <li>• Introduction to Ayurveda.</li> <li>• Yoga and Naturopathy</li> <li>• Unani</li> <li>• Siddha</li> <li>• Homeopathy</li> <li>• Need for integration of various system of medicine</li> </ul>	<b>5 hrs</b>
<b>Unit-4:</b>	<ul style="list-style-type: none"> <li>• Health scenario of India- past, present and future</li> <li>• Demography &amp; Vital Statistics-Demography – its concept, Vital events of life &amp; its impact on demography, Significance and recording of vital statistics</li> <li>• Census &amp; its impact on health policy</li> </ul>	<b>5 hrs</b>
	<ul style="list-style-type: none"> <li>• Epidemiology               <ul style="list-style-type: none"> <li>○ Principles of Epidemiology Natural History of disease</li> </ul> </li> </ul>	

Bachelor of Optometry - Syllabus as per CBCS (2019-20)





<b>Unit-5:</b>	<p>Methods of Epidemiological studies</p> <ul style="list-style-type: none"> <li>○ Epidemiology of communicable &amp; non-communicable diseases, disease transmission, host defense immunizing agents, cold chain, immunization, disease monitoring and surveillance</li> </ul>	<b>6 hrs</b>
<b><u>Text Books:</u></b>	Margie Lovett Scott, Faith Prather. Global health systems comparing strategies for delivering health services. Joney & Bartlett learning, 2014 (page 167 -178)	
<b><u>E-learning site</u></b>	<a href="https://www.mohfw.gov.in/pdf/Telemedicine.pdf">https://www.mohfw.gov.in/pdf/Telemedicine.pdf</a>	



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<b>Course Code:</b> BCO-S-308	<b>ABILITY ENHANCEMENT COMPULSORY COURSE (AECC)-3</b> <b>Bachelor of Optometry</b> <b>Semester-III</b> <b>Environmental Sciences</b>	<b>L-4</b> <b>T-0</b> <b>P-0</b> <b>C-4</b>
<b>Course Outcomes</b>	<b>On completion of the course, the students will be :</b>	
<b>CO1.</b>	Understanding basic concepts in the context of ecological and environmental sciences.	
<b>CO2.</b>	Interpreting the ideas about energy resources in today's scenario and discussing about alternate energy sources.	
<b>CO3.</b>	Classifying and describe biodiversity and also summarize biogeographically distribution of India.	
<b>CO4.</b>	Describing concepts and methods to apply in environmental communication and public awareness.	
<b>CO5.</b>	Interpreting the ethical and cultural conduct in environmental activities.	
<b>Course Content:</b>		
<b>Unit-1:</b>	Definition and Scope of environmental studies, multidisciplinary nature of environmental studies, Concept of sustainability & sustainable development. <b>Ecology and Environment:</b> Concept of an Ecosystem-its structure and functions, Energy Flow in an Ecosystem, Food Chain, Food Web, Ecological Pyramid & Ecological succession, Study of following ecosystems: Forest Ecosystem, Grass land Ecosystem & Aquatic Ecosystem & Desert Ecosystem.	<b>6 Hours</b>
<b>Unit-2:</b>	<b>Natural Resources:</b> Renewable & Non-Renewable resources; Land resources and land use change; Land degradation, Soil erosion & desertification. <b>Deforestation:</b> Causes & impacts due to mining, Dam building on forest biodiversity & tribal population. <b>Energy Resources:</b> Renewable & Non-Renewable resources, Energy scenario & use of alternate energy sources, Case studies. <b>Biodiversity:</b> Hot Spots of Biodiversity in India and World, Conservation, Importance and Factors Responsible for Loss of Biodiversity, Bio-geographical Classification of India	<b>8 Hours</b>
<b>Unit-3:</b>	<b>Environmental Pollutions:</b> Types, Causes, Effects & control; Air, Water, soil & noise pollution, Nuclear hazards & human health risks, Solid waste Management; Control measures of urban & industrial	<b>6 Hours</b>



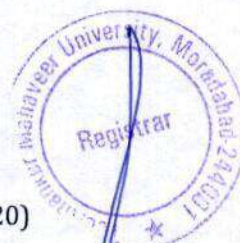


	wastes, pollution case studies	
<b>Unit-4:</b>	<b>Environmental policies &amp; practices: Climate change &amp; Global Warming</b> (Green house Effect), Ozone Layer -Its Depletion and Control Measures, Photochemical Smog, Acid Rain Environmental laws: Environment protection Act; air prevention & control of pollution act, Water Prevention & Control of Pollution Act, Wild Life Protection Act, Forest Conservation Acts, International Acts; Montreal & Kyoto Protocols & Convention on biological diversity, Nature reserves, tribal population & Rights & human wild life conflicts in Indian context	<b>6 Hours</b>
<b>Unit-5:</b>	<b>Human Communities &amp; Environment:</b> Human population growth; impacts on environment, human health & welfare, Resettlement & rehabilitation of projects affected person: A case study, Disaster Management; Earthquake, Floods & Droughts, Cyclones & Landslides, Environmental Movements; Chipko, Silent Valley, Vishnoi's of Rajasthan, Environmental Ethics; Role of Indian & other regions & culture in environmental conservation, Environmental communication & public awareness; Case studies.	<b>8 Hours</b>
<b><u>Text Books:</u></b>	1. "Fundamentals of Ecology", Odum, E. P., W. B. Saunders Co.	
<b><u>Reference Books:</u></b>	1. "Biodiversity and Conservation", Bryant, P. J., Hypertext Book 2. "Textbook of Environment Studies", Tewari, Khulbe & Tewari, I. Publication	
<b><u>E-Learning site</u></b>	<a href="https://www.coursera.org/browse/physical-science-and-engineering/environmental-science-and-sustainability">https://www.coursera.org/browse/physical-science-and-engineering/environmental-science-and-sustainability</a>	





<b>Course Code:</b> BCO-S-401	<b>Discipline Specific Course (DSC)-13</b> <b>Bachelor of Optometry</b> <b>Semester-IV</b> <b>OPTOMETRIC OPTICS II &amp; DISPENSING OPTICS</b>	<b>L-4</b> <b>T-0</b> <b>P-0</b> <b>C-4</b>
<b>Course Outcomes</b>	<b>On completion of the course, the students will be:</b>	
<b>CO1.</b>	Understanding to select the tool power for grinding process	
<b>CO2.</b>	Understanding about different types of materials used to make lenses and its characteristics	
<b>CO3.</b>	Understanding about Spectacle frames, various Lens designs,	
<b>CO4.</b>	Analyzing various dispensing spectacle lens and frames based on the glass prescription	
<b>CO5.</b>	Evaluating various facial measurements - Interpupillary distance measurement and measuring heights (single vision, multifocal, progressives)	
<b>Course Content:</b>		
<b>Unit-1:</b>	<ul style="list-style-type: none"> <li>• Properties of an Ideal Ophthalmic Lens material.</li> <li>• Current Ophthalmic Lens materials-Crown glass, CR-39, Polycarbonate &amp; Trivex.</li> <li>• Lens Surfacing</li> <li>• Defects of optical lenses.</li> <li>• Lens types &amp; design (spheric, aspheric, lenticular lenses)</li> <li>• High index lens</li> <li>• Revision of Aberrations and its correction</li> </ul>	<b>8hrs</b>
<b>Unit-2:</b>	<ul style="list-style-type: none"> <li>• Definition of Spectacle frames</li> <li>• Parts of spectacle frames</li> <li>• Frames types-Full frames, Supra-frames and Rimless,</li> <li>• Frame materials (Metal &amp; Plastic)</li> <li>• Frame selection</li> <li>• Frame Measurement-Datum System and Boxing System</li> <li>• Facial Measurements-IPD (PD Ruler &amp; Pupillometer), VD, Facial Wrap, Pantoscopic Tilt</li> <li>• Frame Adjustment.</li> <li>• Spectacle Delivery - on eye verification</li> </ul>	<b>6 hrs</b>





<b>Unit-3:</b>	<ul style="list-style-type: none"> <li>• Classification of optical radiation</li> <li>• Radiant and Eye</li> <li>• Types of reflection</li> <li>• Reflection from lens surface</li> <li>• Lens Coating- Types of Coating and their importance.</li> <li>• Theory of Anti-Reflection Coating.</li> <li>• Glares &amp; its types</li> <li>• Absorptive lens (tinted lens &amp; filters, photo chromic lenses, polarized lenses)</li> <li>• Ideal sunglasses</li> </ul>	<b>6 hrs</b>
<b>Unit-4:</b>	<ul style="list-style-type: none"> <li>• Introduction: bifocals, indications</li> <li>• Types of bifocals</li> <li>• Calculations related to bifocal (image jump)</li> <li>• Introduction: PALs</li> <li>• Designs &amp; optics of PALs</li> <li>• Progressive lens Markings</li> <li>• Trouble shooting of PALs</li> </ul>	<b>8 hrs</b>
<b>Unit-5:</b>	<ul style="list-style-type: none"> <li>• Special types of spectacles</li> <li>• Paediatric Dispensing (uniqueness of paediatric Dispensing, frame, lens &amp; measurement)</li> <li>• Safety &amp; sport eyewear</li> <li>• Aniseikonia &amp; Aniseikonic lenses</li> <li>• Specialty sunglasses</li> </ul>	<b>6 hrs</b>
<b><u>Text Books:</u></b>	1. C W Brooks, IM Borish: System for Ophthalmic Dispensing, 3rd edition, Butterworth - Heinemann, 2007	
<b><u>Reference Books:</u></b>	1. Michael P Keating: Geometric, Physical & Visual Optics, 2nd edition, Butterworth - Heinemann, 2002	
<b><u>E- Learning site</u></b>	<a href="https://cybersight.org/online-learning/">https://cybersight.org/online-learning/</a> <a href="https://www.aao.org/education-course">https://www.aao.org/education-course</a> <a href="https://abdocollege.org.uk/news/become-a-dispensing-optician-2/">https://abdocollege.org.uk/news/become-a-dispensing-optician-2/</a>	





<b>Course Code:</b> BCO-S-402	<b>Discipline Specific Course (DSC)-14</b> <b>Bachelor of Optometry</b> <b>Semester-IV</b> <b>VISUAL OPTICS II</b>	L-4 T-0 P-0 C-4
<b>Course Outcomes</b>	<b>On completion of the course, the students will be:</b>	
<b>CO1.</b>	Understanding about accommodation, its anomalies and their practical significance	
<b>CO2.</b>	Understanding about convergence, its anomalies and their clinical significance	
<b>CO3.</b>	Have a knowledge about retinoscopy and its procedure	
<b>CO4.</b>	Analyzing the importance of subjective and objective refraction	
<b>CO5.</b>	Applying the theoretical knowledge on clinical practice	
<b>Course Content:</b>		
<b>Unit-1:</b>	<ul style="list-style-type: none"> <li>Visual Acuity &amp; its component</li> <li>Optics of ocular structure (Different Refractive media)</li> <li>Schematic and reduced eye</li> </ul>	8 hrs
<b>Unit-2:</b>	<ul style="list-style-type: none"> <li>Measurements of Optical Constants of the Eye</li> <li>Corneal &amp; lens thickness</li> <li>Axis &amp; Angles of eye</li> <li>Emmetropization</li> <li>Refractive error (Myopia, Hypermetropia, Astigmatism) : types, Clinical features &amp; its management</li> </ul>	6 hrs
<b>Unit-3:</b>	<ul style="list-style-type: none"> <li>Visual functions &amp; its types</li> <li>Clinical relevance of interference, Diffraction, Polarization</li> <li>Accommodation &amp; Convergence: Anomalies</li> <li>Accommodation &amp; Convergence relationship</li> </ul>	6 hrs
<b>Unit-4:</b>	<ul style="list-style-type: none"> <li>Subjective Refraction</li> <li>Principle and fogging</li> <li>Fixed astigmatic dial (Clock dial), Combination of fixed and rotator block test, J.C.C dial (Fan)</li> <li>Duo chrometest</li> <li>Binocular balancing- alternate occlusion, prism dissociation, dissociate</li> <li>Duo chrome balance, Borish dissociated fogging</li> </ul>	8 hrs
<b>Unit-5:</b>	<ul style="list-style-type: none"> <li>Effective Power &amp; Magnification</li> <li>Ocular refraction vs. Spectacle refraction</li> <li>Spectacle magnification vs. Relative spectacle magnification</li> <li>Axial vs. Refractive Ametropia, Knapp's law</li> </ul>	8 hrs





<b>Course Code:</b> <b>BCO-S-403</b>	<b>Discipline Specific Course(DSC)-15</b> <b>Bachelor of Optometry</b> <b>Semester-IV</b> <b>OCULAR DISEASE II</b>	<b>L-3</b> <b>T-0</b> <b>P-0</b> <b>C-3</b>
<b>Course Outcomes</b>	<b>On completion of the course, the students will be:</b>	
<b>CO1.</b>	Understanding the concept of different Ocular diseases of posterior segment of Eye	
<b>CO2.</b>	Applying the concept of anatomy & Physiology of Eye while understanding the Pathology of different ocular diseases	
<b>CO3.</b>	Utilizing the concept of clinical features of the diseases for the differential diagnosis of the ocular diseases	
<b>CO4.</b>	Analyzing the concept of clinical features of the diseases for the management of ocular diseases	
<b>Course Content:</b>		
<b>Unit-1:</b>	<ul style="list-style-type: none"> <li>• Vitreous opacities its Pathogenesis, Clinical &amp; Management.</li> <li>• Vitreous degeneration its Pathogenesis, Clinical &amp; Management.</li> <li>• Vitreous inflammation its Pathogenesis, Clinical &amp; Management.</li> <li>• Vitreous hemorrhage its Pathogenesis, Clinical &amp; Management.</li> <li>• Vitreous detachment, its Pathogenesis, Clinical &amp; Management.</li> </ul>	<b>6 hrs</b>
<b>Unit-2:</b>	<ul style="list-style-type: none"> <li>• Disorder of choroid its Pathogenesis, Clinical &amp; Management.</li> <li>• <b>Vascular disorder of retina:</b> CRVO, BRVO, CRAO, BRAO, Diabetic Retinopathy, Hypertensive Retinopathy &amp; their Pathogenesis, Clinical &amp; Management.</li> </ul>	<b>6hrs</b>
<b>Unit-3:</b>	<ul style="list-style-type: none"> <li>• ROP, CSCR, Valsva Retinopathy</li> <li>• <b>Retinal detachment:</b> Type, Pathogenesis and its management</li> <li>• <b>Ocular Injuries:</b> Closed &amp; Open Injuries, Mechanical &amp; Non-Mechanical Injuries – its management.</li> </ul>	<b>6hrs</b>
<b>Unit-4:</b>	<ul style="list-style-type: none"> <li>• Lesions of the visual pathway</li> <li>• Pupillary Reflex &amp; Abnormalities</li> <li>• Optic neuritis, ischemic and non-ischemic optic neuropathy, Papilledema, optic atrophy- Pathogenesis and their management</li> <li>• Cortical blindness</li> <li>• Malingering</li> </ul>	<b>6hrs</b>
<b>Unit-5:</b>	<ul style="list-style-type: none"> <li>• Glaucoma: Definition, Pathogenesis, Classification (congenital, Primary open, close, Normal tension, Secondary glaucoma) and their pharmacological &amp; surgical management.</li> </ul>	<b>6hrs</b>

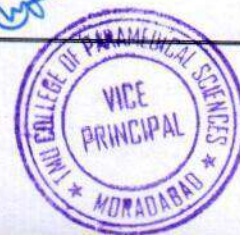


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<b>Course Code:</b> BCO-S-404	<b>CORE COURSE (CC)-6</b> <b>Bachelor of Optometry</b> <b>Semester-IV</b> <b>PATHOLOGY</b>	<b>L-2</b> <b>T-0</b> <b>P-0</b> <b>C-2</b>
<b>Course Outcomes</b>	<b>On completion of the course, the students will be:</b>	
<b>CO1.</b>	Understanding the basic concepts of infection, Inflammation and repair	
<b>CO2.</b>	Understanding the clinical features of various diseases like Tuberculosis, Leprosy, Syphilis	
<b>CO3.</b>	Understanding the clinical features of Anemia, Leukemia, Bleeding disorders	
<b>CO4.</b>	Understanding the clinical features Circulatory disturbances like Thrombosis, Infarction, Embolism	
<b>CO5.</b>	Analyzing the urine report, blood smear	
<b>Course Content:</b>		
<b>Unit-1:</b>	<ul style="list-style-type: none"> <li>• Inflammation and repair</li> <li>• Infection in general</li> </ul>	<b>4hrs</b>
<b>Unit-2:</b>	<ul style="list-style-type: none"> <li>• Specific infections</li> <li>• Tuberculosis</li> <li>• Leprosy</li> <li>• Syphilis</li> <li>• Fungal infection</li> <li>• Viral chlamydial infection</li> </ul>	<b>6hrs</b>
<b>Unit-3:</b>	<ul style="list-style-type: none"> <li>• Neoplasia</li> <li>• Hematology</li> <li>• Anemia</li> <li>• Leukemia</li> <li>• Bleeding disorders</li> </ul>	<b>4 hrs</b>
<b>Unit-4:</b>	<ul style="list-style-type: none"> <li>• Circulatory disturbances</li> <li>• Thrombosis</li> <li>• Infarction</li> <li>• Embolism</li> <li>• Clinical pathology</li> <li>• Interpretation of urine report</li> <li>• Interpretation of blood smears.</li> </ul>	<b>6hrs</b>
<b>Unit-5:</b>	<ul style="list-style-type: none"> <li>• Immunesystem</li> <li>• Shock, Anaphylaxis.</li> <li>• Allergy</li> </ul>	<b>4hrs</b>
<b>Text Books:</b>	1. K S Ratnagar: Pathology of the eye & orbit, Jaypee brothers Medical Publishers, 1997	





<b>Course Code:</b> BCO-S-406	<b>ABILITY ENHANCEMENT COURSE (AEC) -5</b> <b>Bachelor of Optometry</b> <b>Semester-IV</b> <b>INTRODUCTION TO QUALITY AND PATIENT SAFETY</b>	<b>L-2</b> <b>T-0</b> <b>P-0</b> <b>C-2</b>
<b>Course Outcomes</b>	<b>On completion of the course, the students will be:</b>	
<b>CO1.</b>	Understanding the concept of Quality assurance of different equipment used in ophthalmic department and its management	
<b>CO2.</b>	Understanding the concept of basics of emergency care and life support skills	
<b>CO3.</b>	Applying concept of biomedical waste management and environment safety.	
<b>CO4.</b>	Applying concept of Infection and prevention control	
<b>CO5.</b>	Understanding the concept of ocular drainage and other mechanical systems.	
<b>CO6.</b>	Utilizing the concept of disaster preparedness and management	
<b>Course Content:</b>		
<b>Unit-1:</b>	<ul style="list-style-type: none"> <li>Quality assurance and management</li> </ul>	<b>4hrs</b>
<b>Unit-2:</b>	<ul style="list-style-type: none"> <li>Basics of emergency care and life support skills</li> </ul>	<b>6hrs</b>
<b>Unit-3:</b>	<ul style="list-style-type: none"> <li>Biomedical waste management and environment safety</li> </ul>	<b>4 hrs</b>
<b>Unit-4:</b>	<ul style="list-style-type: none"> <li>Infection and prevention control</li> </ul>	<b>6hrs</b>
<b>Unit-5:</b>	<ul style="list-style-type: none"> <li>Antibiotic resistance</li> </ul>	<b>4hrs</b>
<b>Text Books:</b>	Faculty to recommend	
<b>Reference Books:</b>	. Faculty to recommend	
<b>E-Learning site</b>	<a href="https://www.coursera.org/learn/quality-healthcare">https://www.coursera.org/learn/quality-healthcare</a> <a href="https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/patientsafetyculture/hospital/userguide/hospcult.pdf">https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/quality-patient-safety/patientsafetyculture/hospital/userguide/hospcult.pdf</a>	





<b>Course Code:</b> BCO-S-407	<b>Core course (CC) -7</b> <b>Bachelor of Optometry</b> <b>Semester-IV</b> <b>MEDICAL PSYCHOLOGY</b>	<b>L-2</b> <b>T-0</b> <b>P-0</b> <b>C-2</b>
<b>Course Outcomes</b>	<b>On completion of the course, the students will be:</b>	
<b>CO1.</b>	Understanding the concept of Medical Psychology.	
<b>CO2.</b>	Applying concept of Medical Psychology in clinic.	
<b>CO3.</b>	Applying concept of learning, personality and Motivation in Clinic	
<b>CO4.</b>	Understanding the concept of Body Image & language.	
<b>CO5.</b>	Utilizing Patient-therapist relation in clinic.	
<b>CO6.</b>	Analyzing the mentality of patient for present illness.	
<b>Course Content:</b>		
<b>Unit-1:</b>	<ul style="list-style-type: none"> <li>• Introduction to Psychology</li> <li>• Intelligence Learning, Memory, Personality, Motivation</li> </ul>	<b>4hrs</b>
<b>Unit-2:</b>	<ul style="list-style-type: none"> <li>• Body Integrity – one's body image</li> <li>• The patient in his Milen</li> </ul>	<b>6hrs</b>
<b>Unit-3:</b>	<ul style="list-style-type: none"> <li>• The self-concept of the therapist, Therapist-patient relationship – some guidelines</li> <li>• Illness, its impact on the patient</li> </ul>	<b>4 hrs</b>
<b>Unit-4:</b>	<ul style="list-style-type: none"> <li>• Maladies of the age and their impact on the patient's own and others concept of his body image</li> </ul>	<b>6hrs</b>
<b>Unit-5:</b>	<ul style="list-style-type: none"> <li>• Adapting changes in Vision</li> <li>• Why Medical Psychology demands commitment</li> </ul>	<b>4hrs</b>
<b>Text Books:</b>	1. Patricia Barkway. Psychology for health professionals, 2 <sup>nd</sup> edition, Elsevier, 2013	
<b>E-Learning site</b>	. <a href="https://www.docsity.com/en/subjects/clinical-psychology/">https://www.docsity.com/en/subjects/clinical-psychology/</a>	



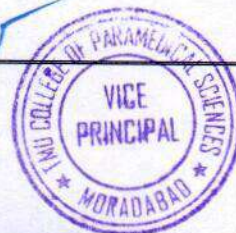



<b>Course Code:</b> BCO-S-408	<b><u>Discipline Specific Elective Course</u></b> <b><u>(DSEC)-I</u></b> <b>Bachelor of Optometry</b> <b>Semester-IV</b>	<b>L-3</b> <b>T-0</b> <b>P-0</b> <b>C-3</b>
	<b>EYE BANKING</b>	
<b>Course Outcomes:</b>	<b>On completion of the course, the students will be:</b>	
<b>CO-1</b>	Understanding the basic concepts of Eye banking	
<b>CO-2</b>	Understanding different methods of eye donation	
<b>CO-3</b>	Understanding different methods of Enucleation of eye	
<b>CO-4</b>	Understanding the procedure of storage of Eye in Eye bank	
<b>Course Content:</b>		
<b>Unit-1:</b>	<b>Quality Assurance and Control:</b> EB Medical Standards, EB Standardized Procedures, Sterilization, Refrigeration and Temperature Recording, Instrument Inspection, Cleaning, and Handling, Quality Assurance Monitoring	<b>6 Hours</b>
<b>Unit-2:</b>	<ul style="list-style-type: none"> <li>Record Keeping and Documentation</li> <li>Professional Standards</li> <li>Adverse Reaction Reports</li> <li>Consent Informed Consent Procedures and Documentation</li> <li>Donor History, Screening, and Evaluation</li> <li>Determination of Suitability</li> </ul>	<b>6 Hours</b>
<b>Unit-3:</b>	<ul style="list-style-type: none"> <li>Donation</li> <li>Transplant</li> <li>Legislation and Regulatory Requirements</li> </ul>	<b>6 Hours</b>
<b>Unit-4:</b>	<ul style="list-style-type: none"> <li><b>Preservation of Tissue</b> <ul style="list-style-type: none"> <li>Procedures and Methods</li> </ul> </li> <li>Preservation Media</li> <li><b>Transport and Storage of Tissue</b> <ul style="list-style-type: none"> <li>Packaging and Labeling</li> </ul> </li> </ul>	<b>6 Hours</b>
<b>Unit-5:</b>	<ul style="list-style-type: none"> <li><b>Examination and Evaluation of Tissue</b> <ul style="list-style-type: none"> <li>Slit Lamp Bio microscopy</li> <li>Specular Microscopy</li> <li>Other</li> </ul> </li> </ul>	<b>6 Hours</b>
<b>Text Books:</b>	Essentials of Eye Banking: by A. Panda	






<b>Course Code:</b> BCO-S-409	<b><u>Discipline Specific Elective Course</u></b> <b><u>(DSEC)-I</u></b> <b>Bachelor of Optometry</b> <b>Semester-IV</b>	<b>L-3</b> <b>T-0</b> <b>P-0</b> <b>C-3</b>
	<b>DRY EYE</b>	
<b>Course Outcomes:</b>	<b>On completion of the course, the students will be:</b>	
<b>CO-1</b>	Understanding the basic concepts of Dry Eye	
<b>CO-2</b>	Understanding Aetiology and Pathophysiology of Dry Eye	
<b>CO-3</b>	Analyzing the different methods of Diagnosis Dry Eye.	
<b>CO-4</b>	Applying the Optometric Management for Dry Eye	
<b>Course Content:</b>		
<b>Unit-1:</b>	<ul style="list-style-type: none"> <li>Anatomy of Lacrimal system, Tear film &amp; Cornea</li> <li>Physiology of Tear film</li> <li>Tear secretion and its changes with age.</li> </ul>	<b>6 Hours</b>
<b>Unit-2:</b>	<ul style="list-style-type: none"> <li>Definition of Dry Eye</li> <li>Classification of Dry Eye</li> <li>Etiology &amp; Pathophysiology of Dry Eye</li> <li>Clinical Pictures Of Dry Eye</li> </ul>	<b>6 Hours</b>
<b>Unit-3:</b>	<ul style="list-style-type: none"> <li>Inflammatory condition associated with Dry Eye</li> <li>Meibomian Gland disorder and deformities.</li> <li>Allergic condition and the Dry Eye</li> <li>Medication (Topical &amp; Systemic) effecting Tear secretion</li> <li>Effects of systemic condition and various Syndromes [Thyroids, Arthritis, SJS, Sjogrens Syndrome, CVS (dry eye specifically)]</li> </ul>	<b>6 Hours</b>
<b>Unit-4:</b>	<ul style="list-style-type: none"> <li>Diagnosis ( SlitLmp Biomicroscope Examination) [Evaporation dry eye diagnosis, Osmolarity testing, TBUT, Schirmer Test (I,II), Non Invasive BUT, NI Tear Meniscus Hight, Lipid Layer Thickness, FCT]</li> <li>Infrared Meibography</li> <li>Tearoscope</li> <li>Interpherometry</li> <li>Thermography</li> </ul>	<b>6 Hours</b>
<b>Unit-5:</b>	<ul style="list-style-type: none"> <li>Management (Medical Intervention, Surgical Intervention)</li> <li>Optometric management of Dry Eye (Environmental modification, Punctul Plugs, Specific water gradient CLs to preserve tear, Scleral lenses concept Introduction, Treating MGD with Lipid flow and it's indication, efficacy)</li> </ul>	<b>6 Hours</b>
<b>Text Books:</b>	IACLE Module II	





New Course Added

Note: Course outcome of following practical's are covered in their respective theory courses

<b>Course Code:</b> BCO-S-451	<b>Skill Enhancement Course (SEC) -15</b> <b>Bachelor of Optometry-</b> <b>Semester-IV</b>  <b>Optometric Optics –II &amp; Dispensing Practical</b>	<b>L-0</b> <b>T-0</b> <b>P-2</b> <b>C-1</b>
<b>Course Outcomes</b>		
1.	Find out the meridian & optical center of ophthalmic lens,	
2	Neutralization – manual & help of Lensometer	
3	Identification of lens-spherical, cylindrical & sphero-cylindrical lenses,	
4	Lens-surfacing & edging, cutting & marking of single vision bifocal progressive	
5	Frame measurement: The boxing system, the datum system. Comparison of the two systems, Lens position, segment specification,	
6	Frame selection: Fashion, Function & standard alignment,	
7	Lens selection: Ground rule for selection, selection criteria,	
8	Facial measurements: The PD, Visual axes, & measuring inter-Pupillary distance using P.D ruler., Common difficulties in measuring P.D, measuring monocular P.D, measuring near C.D., Measuring heights: - single vision, bifocal, multifocal, progressive,	
9	Pediatric dispensing.	





*New Course Added*

Note: Course outcome of following practical's are covered in their respective theory courses

<u>Course Code:</u> BCO-S-453	<b><u>Skill Enhancement course (SEC)-18</u></b> <b>Bachelor of Optometry</b> <b>Semester-IV</b> <b>EYE BANKING-PRACTICAL</b>	L-0 T-0 P-2 C-1
	<ul style="list-style-type: none"><li>• Preservation of Tissue<ul style="list-style-type: none"><li>• Procedures and Methods</li><li>• Preservation Media</li></ul></li><li>• Transport and Storage of Tissue</li><li>• Packaging and Labeling</li></ul>	

Note: Course outcome of following practical's are covered in their respective theory courses

<u>Course Code:</u> BCO-S-454	<b><u>Skill Enhancement course (SEC)-18</u></b> <b>Bachelor of Optometry</b> <b>Semester-IV</b> <b>DRY EYE-PRACTICAL</b>	L-0 T-0 P-2 C-1
	<ul style="list-style-type: none"><li>- Dry eye evaluation</li><li>- Invasive &amp; Non-Invasive Test</li></ul>	

*[Handwritten Signature]*





<b>Course Code:</b> BCO-S-601	<b>Discipline Specific Course (DSC) -22</b> <b>Bachelor of Optometry</b> <b>Semester-VI</b> <b>CONTACT LENS-II</b>	<b>L-3</b> <b>T-0</b> <b>P-2</b> <b>C-4</b>
<b>Course Outcomes:</b>	<b>On completion of the course, the students will be :</b>	
<b>CO1.</b>	Understanding about soft contact lens material & their property, selection of parameter	
<b>CO2.</b>	Understanding about soft contact lens fitting characteristics and evaluation of fitting	
<b>CO3.</b>	Understanding about toric soft contact lens, stabilization techniques and application	
<b>CO4.</b>	Learn about complication and their management of soft contact lenses	
<b>CO5.</b>	Understanding about specialty contact lenses	
<b>Course Content:</b>		
<b>Unit-1:</b>	Introduction to soft Contact lenses, Advantages of SCL, Comparison of RGP vs. SCL, Selection of Parameters, Properties of various SCL materials.	<b>6 Hours</b>
<b>Unit-2:</b>	Pre fitting evaluation of SCL, Fitting philosophies for SCL, Characteristics of types of fit. (steep, flat, optimal), Fit assessment in Soft Contact Lenses (steep, flat, optimal), After care & follow up (Do's and Don'ts), Market availability of SCL.	<b>6 Hours</b>
<b>Unit-3:</b>	Different type of stabilization technique & its characteristics, Fitting assessment of Toric SCL, MPS and its major components, Market availability of Toric lens.	<b>6 Hours</b>
<b>Unit-4:</b>	Complications of SCL (etiology, signs, symptoms and managements), Therapeutic CL (definition, Applications, fitting, after care), X-Chrome lens.	<b>6 Hours</b>
<b>Unit-5:</b>	Specialty contact lens, Pediatric Contact Lenses, Multifocal SCL, Ortho-k lens, Rose K lens, Scleral & semi-scleral.	<b>6 Hours</b>
<b>Text Books:</b>	1. IACLE modules 1 - 10	
<b>Reference Books:</b>	* Latest editions of all the suggested books are recommended.	
<b>E- Learning site</b>	<a href="https://iacle.org/">https://iacle.org/</a> <a href="https://www.clspectrum.com/">https://www.clspectrum.com/</a> <a href="https://www.bausch.com/ecp/for-your-practice/training-tools">https://www.bausch.com/ecp/for-your-practice/training-tools</a> <a href="https://www.jnjvisionpro.ca/education-centre">https://www.jnjvisionpro.ca/education-centre</a>	





<b>Course Code:</b> <b>BCO-S-602</b>	<b>Discipline Specific Course (DSC)-23</b> <b>Bachelor of Optometry</b> <b>Semester-VI</b> <b>BINOCULAR VISION-II</b>	<b>L-3</b> <b>T-0</b> <b>P-2</b> <b>C-4</b>
<b>Course Outcomes:</b>	On completion of the course, the students will be :	
<b>CO1.</b>	Understanding the classification of strabismus	
<b>CO2.</b>	Understanding the concept of recording history in strabismus patients	
<b>CO3.</b>	Understanding the clinical features of convergent & divergent Strabismus	
<b>CO4.</b>	Understanding the clinical features of vertical & paralytic Strabismus	
<b>CO5.</b>	Understanding the procedure of various investigation to rule out the types of strabismus	
<b>Course Content:</b>		
<b>Unit-1:</b>	Neuro-muscular anomalies- Classification and etiological factors, History – recording and significance.	6 Hours
<b>Unit-2:</b>	<b>Convergent strabismus-</b> Accommodative convergent squint- Classification, Investigation and Management, Non accommodative Convergent squint- Classification, Investigation and Management, <b>Divergent Strabismus-</b> Classification, A& V phenomenon, Investigation and Management.	6 Hours
<b>Unit-3:</b>	<b>Vertical strabismus-</b> Classification, Investigation and Management, <b>Paralytic Strabismus--</b> Classification, Investigation and Management, Distinction from comitant and restrictive Squint.	6 Hours
<b>Unit-4:</b>	<b>Investigations:</b> History and symptoms, Head Posture, Diplopia Charting, Hess chart, PBCT, Nine directions, Binocular field of vision, Amblyopia and Treatment of Amblyopia, Nystagmus.	6 Hours





<b><u>Unit-5:</u></b>	Non-surgical Management of Squint, Restrictive Strabismus, Features, Musculo- fascial anomalies, Duane's Retraction syndrome, Clinical features and management, Brown's Superior oblique sheath syndrome, Strabismus fixus, Congenital muscle, fibrosis, Surgical management.	6 Hours
<b><u>Text Books:</u></b>	1. Gunter K. VonNoorden: BURIAN- VON NOORDEN'S Binocular vision and ocular motility theory and management of strabismus, Missouri, Second edition, 1980, C. V. Mosby Company.	
<b><u>Reference Books:</u></b>	* Latest editions of all the suggested books are recommended.	
<b><u>E-Learning site</u></b>	<a href="https://cybersight.org/portfolio/lecture-binocular-vision-part-iii-managing-binocular-vision-disorders/">https://cybersight.org/portfolio/lecture-binocular-vision-part-iii-managing-binocular-vision-disorders/</a> <a href="https://www.aao.org/Assets/0c711d7f-503f-4cd9-b4ac-92d6ec31a718/636343503854270000/strabismus-binocular-vision-and-ocular-motility-vnoorden-pdf?inline=1">https://www.aao.org/Assets/0c711d7f-503f-4cd9-b4ac-92d6ec31a718/636343503854270000/strabismus-binocular-vision-and-ocular-motility-vnoorden-pdf?inline=1</a>	

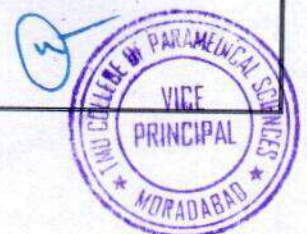




*New course Added*

<b>Course Code:</b> <b>BCO-S-603</b>	<b>Discipline Specific Course (DSC)-24</b> <b>Bachelor of Optometry</b> <b>Semester-VI</b> <b>PUBLIC HEALTH AND COMMUNITY OPTOMETRY</b>	<b>L-2</b> <b>T-0</b> <b>P-0</b> <b>C-2</b>
<b>Course Outcomes:</b>	On completion of the course, the students will be :	
<b>CO1.</b>	Understanding about the concepts and definitions of public health	
<b>CO2.</b>	Understanding the role of optometrist in public health	
<b>CO3.</b>	Having a knowledge about various eye programme and screening procedures	
<b>CO4.</b>	Analyzing the role of optometrist in school screening programme	
<b>CO5.</b>	Analyzing the importance of tele ophthalmology in the field of optometry	
<b>Course Content:</b>		
<b>Unit-1:</b>	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.	4 Hours
<b>Unit-2:</b>	Eye in primary health care, Contrasting between Clinical and community health programs, Community Eye Care Programs, Community based rehabilitation programs.	4 Hours
<b>Unit-3:</b>	Nutritional Blindness with reference to Vitamin A deficiency, Vision 2020: The Right to Sight, Screening for eye diseases, National and International health agencies, NPCB.	6 Hours
<b>Unit-4:</b>	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 programs.	6 Hours
<b>Unit-5:</b>	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.	4 Hours
<b>Text Books:</b>	1. GVS Murthy, S K Gupta, D Bachani: The principles and practice of community Ophthalmology, National programme for control of blindness, New Delhi, 2002	

Bachelor of Optometry - Syllabus as per CBCS (2019-20)





<b>Course Code:</b> <b>BCO-S-604</b>	<b>Core Course (CC) -8</b> <b>Bachelor of Optometry</b> <b>Semester-VI</b> <b>PRACTICE MANAGEMENT</b>	<b>L-2</b> <b>T-0</b> <b>P-0</b> <b>C-2</b>
<b>Course Outcomes:</b>	On completion of the course, the students will be:	
<b>CO1.</b>	Understanding the concepts of Business Management and Practice Establishment.	
<b>CO2.</b>	Analyzing and Applying various aspects of Stocking, staffing and business Computerization in running an Optometry Clinic, Optical outlet or business.	
<b>CO3.</b>	Understanding, Analyzing and Applying various aspects of accounting principles, different sources of finance and cash flow.	
<b>CO4.</b>	Applying various rules of Book keeping to monitor and calculate final profit/Loss of a business establishment, and helps on taxation planning of the Establishment.	
<b>CO5.</b>	Understanding, Analyzing and Applying various aspects of professionalism, integrity, objectivity, personal values, team work, etc in running a business efficiently.	
<b>Course Content:</b>		
<b>Unit-1:</b>	Business Management: Practice establishment and development, Stock control and costing, Staffing and staff relations, Business computerization.	6 Hours
<b>Unit-2:</b>	Accounting Principles, Sources of finance, Bookkeeping and cash flow.	4 Hours
<b>Unit-3:</b>	Taxation and taxation planning.	4 Hours
<b>Unit-4:</b>	Professionalism and Values, Professional values- Integrity, Objectivity, Professional competence and due care, Confidentiality.	4 Hours
<b>Unit-5:</b>	Personal values- ethical or moral values, Attitude and behavior- professional behavior, 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.	6 Hours
<b>Text Books:</b>	1. Faculty to recommend	
<b>Reference Books:</b>	1. Faculty to recommend. * Latest editions of all the suggested books are recommended.	



<b>Course Code:</b> <b>BCO-S-606</b>	<b>Core Course (CC) -9</b> <b>Bachelor of Optometry</b> <b>Semester-VI</b> <b>MEDICAL LAW AND ETHICS</b>	L-2 T-0 P-0 C-2
<b>Course Outcomes:</b>	On completion of the course, the students will be:	
<b>CO1.</b>	Understanding the goal & scope of Medical ethics	
<b>CO2.</b>	Understanding the concept of Basic principles of medical ethics	
<b>CO3.</b>	Understanding the concept of Malpractice and negligence	
<b>CO4.</b>	Understanding the concept medico legal aspects of medical records	
<b>CO5.</b>	Understanding the standardized protocol to avoid near miss or sentinel events	
<b>Course Content:</b>		
<b>Unit-1:</b>	Medical ethics - Definition - Goal – Scope, Introduction to Code of conduct.	6 Hours
<b>Unit-2:</b>	Basic principles of medical ethics –Confidentiality, Malpractice and negligence - Rational and irrational drug therapy.	4 Hours
<b>Unit-3:</b>	Autonomy and informed consent - Right of patients, Care of the terminally ill- Euthanasia.	4 Hours
<b>Unit-4:</b>	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.	6 Hours
<b>Unit-5:</b>	Professional Indemnity insurance policy, Development of standardized protocol to avoid near miss or sentinel events, Obtaining an informed consent.	4 Hours
<b>Text Books:</b>	Faculty to recommend	
<b>Reference Books:</b>	Faculty to recommend * Latest editions of all the suggested books are recommended.	





Note: Course outcome of following practical's are covered in their respective theory courses

<b>Course Code:</b> <b>BCO-S-651</b>	<b>Skill Enhancement Course (SEC)-23</b> <b>Bachelor of Optometry</b> <b>Semester-VI</b> <b>CONTACT LENS II PRACTICAL</b>	L-0 T-0 P-2 C-1
	<ol style="list-style-type: none"> <li>1. Examination of old softLens</li> <li>2. RGP Lensfitting</li> <li>3. RGP Lens Fit Assessment and fluoresceinpattern</li> <li>4. Special RGP fitting (Aphakia, pseudo phakia &amp; Keratoconus)</li> <li>5. RGP over refraction and Lensflexure</li> <li>6. Examination of old RGPLens</li> <li>7. RGP Lensparameters</li> <li>8. Fitting Cosmetic ContactLens</li> <li>9. Slit lamp examination ofContact Lenswearers</li> <li>10. Fitting Toric Contact Lens</li> <li>11. Bandage ContactLens</li> <li>12. SPM &amp; Pachymetry at SN DuringClinics</li> <li>• Specialty Contact Lens fitting (at SN duringclinics)</li> </ol>	





Note: Course outcome of following practical's are covered in their respective theory courses

<u>Course Code:</u> <u>BCO-S-652</u>	<b>Skill Enhancement Course (SEC)-24</b> <b>Bachelor of Optometry</b> <b>Semester-VI</b> <b>BINOCULAR VISION II PRACTICAL</b>	L-0 T-0 P-2 C-1
	1. Deals with hand-on session the basic binocular vision evaluation techniques.	





**Study & Evaluation Scheme**  
**Bachelor of Optometry - VIII Semester (Internship)**

S.NO.	CATEGORY	COURSE CODE	COURSE NAME	PERIODS			CREDITS	EVALUATION SCHEME		
				L	T	P		INTERNAL	EXTERNAL	TOTAL
1	SEC-28	BCO-S-851	Internship-II	-	-	-	10	50	50	100
2	SEC-29	BCO-S-852	Research Project & Viva	-	-	-	10	50	50	100



Bachelor of Optometry - Syllabus as per CBCS (2019-20)

