



**स्वामी राम हिमालयन विश्वविद्यालय**  
**Swami Rama Himalayan University**

## **Criterion 1 - Curricular Aspects**

**1.1.1 Outcome Analysis of POs, COs**  
**Bachelor of Optometry (B. Optom.)**  
**(2020-2023)**

**Himalayan Institute of Medical Sciences**

---

**Swami Rama Nagar, Jolly Grant, Dehradun 248016, Uttarakhand, India**

**A. Program Outcomes**

After successful completion of the program, the student should be able to be a:

PO1	Understands & provides holistic care.
PO2	Leader & member of health care system.
PO3	Communicator with patients, families, colleagues. community
PO4	Lifelong learner
PO5	Professionally committed to excellence.

  


**B. Course-wise CO-PO Mapping**

Mapping factor or Correlational level between Course Outcome (CO) and Program Outcomes (PO) indicates to what extent the teaching and assessment method of CO correlates/contributes the PO at the level defined below:

Correlation Level	Particulars
3	Substantial/high contribution of CO towards PO
2	Moderate contribution of CO towards PO
1	Slight/low contribution of CO towards PO

Course Code		Course Name				
BOPTOM101		ANATOMY, PHYSIOLOGY AND BIOCHEMISTRY				
Course Outcomes		CO-PO Mapping				
At the end of the course the students will be able to:		PO-1	PO-2	PO-3	PO-4	PO-5
CO1	Define the gross structure of human body	3			2	2
CO2	Define, specifically musculo-skeletal, Cardio-respiratory and nervous system.	3		1	2	2
CO3	Apply the anatomical principles in the practice of Optometry.	2			2	
CO4	Understand-scope and importance of blood group	2		1	2	
CO5	understand-scope and importance of blood transfusion.	2			2	1
CO6	understand-scope and importance of fundamentals of different organ systems.	2			2	
CO7	understand integration of the various aspects of metabolism, and their regulatory pathways	2	2	1	2	1
CO8	understand Principles of various conventional and specialized laboratory investigations	3	2	1	3	2
Course-wise PO Average		2.375	0.500	0.500	2.125	1.000



Course Code		Course Name				
BOPTOM102		OCULAR ANATOMY AND PHYSIOLOGY				
Course Outcomes		CO-PO Mapping				
At the end of the course the students will be able to:		PO-1	PO-2	PO-3	PO-4	PO-5
CO1	Able to understand the anatomy of ocular system	3		1	3	2
CO2	Able to understand the physiology of ocular system	2		1	3	2
CO3	Demonstrates and assess of the Extraocular muscles	2		1	3	2
CO4	Identify the microscopic structures of various tissues in the eye and correlate the structure with the function	2	1	1	3	2
CO5	Understand the basic structure and connections between the various parts of the central nervous system and the eye so as understand the neural connections and distribution.	3	2	2	3	2
CO6	Able to understand the anatomy of ocular system	3		1	3	2
CO7	Able to understand the physiology of ocular system	2		1	3	2
CO8	Demonstrates and assess of the Extraocular muscles	2		1	3	2
<b>Course-wise PO Average</b>		<b>2.400</b>	<b>0.600</b>	<b>1.200</b>	<b>3.000</b>	<b>2.000</b>

*[Handwritten Signature]*



Course Code		Course Name				
BOPTOM103		OPTICS				
Course Outcomes		CO-PO Mapping				
At the end of the course the students will be able to:		PO-1	PO-2	PO-3	PO-4	PO-5
CO1	Understand- meridian & optical center of ophthalmic lens, Neutralization – manual & help of lensometer	3		1	3	2
CO2	Demonstrate the prediction of light through different types of lenses and mirrors	3		1	3	2
CO3	Understand- Scope and importance of different kind of lenses their characteristics and uses.	3	1	1	3	2
CO4	Enhance the examination about power of lenses and their special uses.	3		1	3	2
CO5	Deal with Dispensing Optics, Spectacle frame, Frame types, Frame measurements, Frame Selection, Lens Selection.	3	2	1	3	1
<b>Course-wise PO Average</b>		<b>3.000</b>	<b>0.600</b>	<b>1.000</b>	<b>3.000</b>	<b>1.800</b>

*[Handwritten Signature]*



Course Code		Course Name				
BOPTOM104		BASIC ORTHOPTICS				
Course Outcomes		CO-PO Mapping				
At the end of the course the students will be able to:		PO-1	PO-2	PO-3	PO-4	PO-5
CO1	Assess Extraocular muscles, various binocular vision and it's diagnose.	3		2	3	2
CO2	understand Scope and importance of binocular vision anomalies and it's diagnose.	3		2	3	2
CO3	Demonstrate knowledge and understanding about the role of ocular motility	3		2	3	2
CO4	Demonstrate of Orthoptics instrument	3	2	2	3	2
CO5	Ability to perform basic Orthoptics procedure	3	1	2	3	1
<b>Course-wise PO Average</b>		<b>3.000</b>	<b>0.600</b>	<b>2.000</b>	<b>3.000</b>	<b>1.800</b>

*[Handwritten Signature]*



Course Code	Course Name	CO-PO Mapping				
<b>BOPTOM201</b>	<b>PHARMACOLOGY, PATHOLOGY &amp; MICROBIOLOGY</b>					
Course Outcomes		PO-1	PO-2	PO-3	PO-4	PO-5
At the end of the course the students will be able to:						
CO1	Understand different drugs used in ocular treatment and their mechanism of action.	3		1	3	2
CO2	Understand- Scope and importance of different ocular problems and drugs used to treat them.	3	2	1	3	2
CO3	Analyze ocular diseases and mode of action drug used to treat them.	3	2	2	3	2
CO4	Understand practical aspects of microorganisms infecting eye.	3		2	3	2
CO5	Understand the ocular microbiology	3		1	3	1
CO6	Understand Inflammation and repair aspects.	3		1	3	2
CO7	Understand Pathology of various eye parts	3		1	3	1
CO8	Understand Ocular pathology.	2	1	1	2	2
<b>Course-wise PO Average</b>		<b>2.875</b>	<b>0.625</b>	<b>1.250</b>	<b>2.875</b>	<b>1.750</b>

*[Handwritten Signature]*



Course Code		Course Name				
BOPTOM202		CLINICAL REFRACTION & CONTACT LENS				
Course Outcomes		CO-PO Mapping				
At the end of the course the students will be able to:		PO-1	PO-2	PO-3	PO-4	PO-5
CO1	Demonstrate and explain the various refractive conditions based on the different phenomenon of light	3		1	3	2
CO2	Demonstrate safe handling of devices and positioning of patient for measurement of visual acuity.	3		1	3	2
CO3	Identify and understand about the best correct visual acuity	3		1	3	2
CO4	Understand history of Contact Lens, Corneal Anatomy and Physiology, Corneal Physiology and Contact Lens	3	1	1	3	2
CO5	Identify and understanding about the Preliminary Measurements.	3	1	1	3	1
<b>Course-wise PO Average</b>		<b>3.000</b>	<b>0.400</b>	<b>1.000</b>	<b>3.000</b>	<b>1.800</b>

*[Handwritten Signature]*





Course Code		Course Name				
BOPTOM203		OPTOMETRIC INVESTIGATIONS & LOW VISUAL AIDS				
Course Outcomes		CO-PO Mapping				
At the end of the course the students will be able to:		PO-1	PO-2	PO-3	PO-4	PO-5
CO1	Demonstrate and explain the various refractive conditions based on the different phenomenon of light	3		1	3	2
CO2	Assess and deal with Lensometer, Lens gauge, Tonometer, Placido disc, Keterometer, Specular Microscopy, retinoscopy ophthalmoscopy and slit lamp	3		1	3	2
CO3	Demonstrate and understanding about the low vision aids	3	1	1	3	2
CO4	Able to understand definition, grades, statistics of low Vision, Low vision optics, examination, and refraction.	3	1	1	3	2
CO5	Identify and deals with the different instruments and their used in the diagnosis and treatment of ocular diseases.	3	1	1	3	2
<b>Course-wise PO Average</b>		<b>3.000</b>	<b>0.600</b>	<b>1.000</b>	<b>3.000</b>	<b>2.000</b>

*[Handwritten Signature]*



Course Code		Course Name				
BOPTOM204		CLINICAL ORTHOPTICS				
Course Outcomes		CO-PO Mapping				
At the end of the course the students will be able to:		PO-1	PO-2	PO-3	PO-4	PO-5
CO1	Assessment of Extraocular muscles, various binocular vision its diagnose	3	1	1	3	2
CO2	Understand manifest squint work-up and Paralytic squint work-up.	3	2	1	3	2
CO3	Demonstrate knowledge and understanding about the role of ocular motility	3	1	1	3	2
CO4	Demonstrate of Orthoptics instrument.	3	1	1	3	2
CO5	Understand Grades of binocular vision, Depth perception, Binocular Vision Test.	3		1	3	1
<b>Course-wise PO Average</b>		<b>3.000</b>	<b>1.000</b>	<b>1.000</b>	<b>3.000</b>	<b>1.800</b>

*[Handwritten Signature]*



Course Code		Course Name				
BOPTOM301		EYE DISEASES				
Course Outcomes		CO-PO Mapping				
At the end of the course the students will be able to:		PO-1	PO-2	PO-3	PO-4	PO-5
CO1	Understand- Scope and importance of symptomatology, clinical signs, diagnosis, pathogenesis, pathophysiology of lid, cornea, sclera, Lacrimal Apparatus, conjunctiva, iris and lens.	3		1	3	2
CO2	Understand pathophysiology of lid, cornea, sclera, Lacrimal Apparatus, conjunctiva, iris and lens.	3		1	3	2
CO3	Explain about symptomatology, clinical signs and diagnosis of ocular diseases.	3	1	1	3	2
CO4	Understand posterior segment disease.	3	1	1	3	2
CO5	Recognize and manage common infections.	3		1	3	1
<b>Course-wise PO Average</b>		<b>3.000</b>	<b>0.400</b>	<b>1.000</b>	<b>3.000</b>	<b>1.800</b>

*[Handwritten Signature]*



Course Code		Course Name				
BOPTOM302		ADVANCED CONTACT LENS & LOW VISUAL AIDS				
Course Outcomes		CO-PO Mapping				
At the end of the course the students will be able to:		PO-1	PO-2	PO-3	PO-4	PO-5
CO1	Recognize Diagnosis & management of Dry eye in CL wearer Knowledge and understanding about the Preliminary Measurements	3	1	1	3	2
CO2	Understand Contact Lens fitting and Counseling to Contact Lens patient.	3	1	1	3	2
CO3	Identify and understanding about the low vision aids	3		1	3	2
CO4	Understand definition, grades, statistics of low Vision, Low vision optics, examination and refraction.	3		1	3	2
CO5	Understand the basics of low vision aids and visual rehabilitation.	3		1	3	1
<b>Course-wise PO Average</b>		<b>3.000</b>	<b>0.400</b>	<b>1.000</b>	<b>3.000</b>	<b>1.800</b>

*[Handwritten Signature]*



Course Code		Course Name				
BOPTOM303		COMMUNITY OPTOMETRY, EYE BANKING & OT MANAGEMENT				
Course Outcomes		CO-PO Mapping				
At the end of the course the students will be able to:		PO-1	PO-2	PO-3	PO-4	PO-5
CO1	Understand concepts of community Optometry	3	1	2	3	2
CO2	Grasp the significance Epidemiology of Blindness (Disease specific strategies)	3		2	3	2
CO3	Understand O.T. Management	3	2	1	3	2
CO4	Understand regulatory laws for eye banking, strategies to enhance eye collection	3	2	1	3	2
CO5	Understand the ocular microbiology	3		2	3	1
CO6	Understand Inflammation and repair aspects.	3		2	3	2
CO7	Understand Pathology of various eye parts	3	1	1	3	2
CO8	Understand organization of Out-reach services	3	1	1	3	2
<b>Course-wise PO Average</b>		<b>3.000</b>	<b>0.875</b>	<b>1.500</b>	<b>3.000</b>	<b>1.875</b>

*[Handwritten Signature]*



Course Code		Course Name				
BOPTOM304		ADVANCED ORTHOPTICS				
Course Outcomes		CO-PO Mapping				
At the end of the course the students will be able to:		PO-1	PO-2	PO-3	PO-4	PO-5
CO1	Understand Strabismus & Amblyopia, Non- Strabismus Binocular Disorders, Neuro- Optometric Evaluation, Diagnosis & Optometric management	3	3	2	3	2
CO2	Understand manifest squint work-up and Paralytic squint work-up.	3	2	2	3	2
CO3	Demonstrate of Orthoptics instrument	3	1	1	3	2
CO4	Demonstrate knowledge to types of syndromes	3		1	3	2
CO5	Understand capability to serve society regarding eye problems.	3		2	3	1
<b>Course-wise PO Average</b>		<b>3.000</b>	<b>1.200</b>	<b>1.600</b>	<b>3.000</b>	<b>1.800</b>

*[Handwritten Signature]*



**C. Program outcome Reference Value:**

Following table calculates the overall average of all POs of the Courses and is referred as Course-wise Average of POs Reference values.

SR. NO.	Course Code	Course Title	PO-1	PO-2	PO-3	PO-4	PO-5
1	BOPTOM101	Anatomy, Physiology And Biochemistry	2.375	0.500	0.500	2.125	1.000
2	BOPTOM102	Ocular Anatomy And Physiology	2.400	0.600	1.200	3.000	2.000
3	BOPTOM103	Optics	3.000	0.600	1.000	3.000	1.800
4	BOPTOM104	Basic Orthoptics	3.000	0.600	2.000	3.000	1.800
5	BOPTOM201	Pharmacology, Pathology & Microbiology	2.875	0.625	1.250	2.875	1.750
6	BOPTOM202	Clinical Refraction & Contact Lens	3.000	0.400	1.000	3.000	1.800
7	BOPTOM203	Optometric Investigations & Low Visual Aids	3.000	0.600	1.000	3.000	2.000
8	BOPTOM204	Clinical Orthoptics	3.000	1.000	1.000	3.000	1.800
9	BOPTOM301	Eye Diseases	3.000	0.400	1.000	3.000	1.800
10	BOPTOM302	Advanced Contact Lens & Low Visual Aids	3.000	0.400	1.000	3.000	1.800
11	BOPTOM303	Community Optometry, Eye Banking & OT Management	3.000	0.875	1.500	3.000	1.875
12	BOPTOM304	Advanced Orthoptics	3.000	1.200	1.600	3.000	1.800
<b>Combined Average PO Reference values</b>			<b>2.888</b>	<b>0.650</b>	<b>1.171</b>	<b>2.917</b>	<b>1.769</b>

*[Handwritten Signature]*



### D. Assessment of Program Outcome and Attainment Value

The attainment of the course outcome is measured at the level of 3 as follows:

Attainment Levels	Criteria
3	If <b>80%</b> of student achieves marks <b>greater</b> than threshold percentage of the total score of assessment
2	If <b>70%</b> of student achieves marks <b>greater</b> than threshold percentage of the total score of assessment
1	If <b>60%</b> of student achieves marks <b>greater</b> than threshold percentage of the total score of assessment
0	If <b>60%</b> of student achieves marks <b>less</b> than threshold percentage of the total score of assessment

Attainment level of COs is measured through direct attainment of COs depending on the performance of the students in Internal Assessment (IA) and End Semester Examination (ESE) individually. The average attainment level of both assessment is calculated depending on the proportional weightage of IA and ESE according to the academic regulation or marks distribution of the assessment.

For the program the threshold percentage is set at 50% for IA and 50% for ESE Assessments. The Internal Assessment and ESE proportional for program is defined as 20:80.

Sr. No.	Course Code	Course Title	Attainment of Cos	Course-wise Derived Attainment of PO's				
				PO-1	PO-2	PO-3	PO-4	PO-5
1	BOPTOM101	Anatomy, Physiology And Biochemistry	1.400	1.108	0.233	0.233	0.992	0.467
2	BOPTOM102	Ocular Anatomy And Physiology	2.000	1.600	0.400	0.800	2.000	1.333
3	BOPTOM103	Optics	1.800	1.800	0.360	0.600	1.800	1.080
4	BOPTOM104	Basic Orthoptics	0.800	0.800	0.160	0.533	0.800	0.480
5	BOPTOM201	Pharmacology, Pathology & Microbiology	2.000	1.917	0.417	0.833	1.917	1.167





1.1.1 Outcome Analysis of POs, COs - B.Optm (2020-2023)

6	BOPTOM202	Clinical Refraction & Contact Lens	2.600	2.600	0.347	0.867	2.600	1.560
7	BOPTOM203	Optometric Investigations & Low Visual Aids	2.800	2.800	0.560	0.933	2.800	1.867
8	BOPTOM204	Clinical Orthoptics	2.800	2.800	0.933	0.933	2.800	1.680
9	BOPTOM301	Eye Diseases	2.200	2.200	0.293	0.733	2.200	1.320
10	BOPTOM302	Advance Contact Lens & Low Visual Aids	3.000	3.000	0.400	1.000	3.000	1.800
11	BOPTOM303	Community Optometry, Eye Banking & OT Management	3.000	3.000	0.875	1.500	3.000	1.875
12	BOPTOM304	Advance Orthoptics	2.200	2.200	0.880	1.173	2.200	1.320
<b>Average PO Achievement Through Results</b>				<b>2.152</b>	<b>0.488</b>	<b>0.845</b>	<b>2.176</b>	<b>1.329</b>
<b>Average PO Reference Value</b>				<b>2.888</b>	<b>0.650</b>	<b>1.171</b>	<b>2.917</b>	<b>1.769</b>
<b>Percentage Attainment of PO's</b>				<b>74.5%</b>	<b>75.1%</b>	<b>72.2%</b>	<b>74.6%</b>	<b>75.1%</b>

From Attainment level of CO, the Derived PO's value for course is calculated as follows:

$$\text{Derived PO Value} = \frac{\text{CO attainment} \times \text{respective PO average}}{3}$$

Depending on derived PO values of the courses, calculate the average PO achievement for each PO.

Calculate the percentage attainment of PO's as follows:

$$\text{Percentage attainment of PO's} = \frac{\text{Average PO Attainment through}}{\text{average PO refrenece value}} \times 100$$

*[Handwritten Signature]*

