



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

## **Criterion 1 - Curricular Aspects**

### **1.1.1 Outcome Analysis of POs, COs**

#### **MS Orthopaedics (2019-2022)**

**Himalayan Institute of Medical Sciences**

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

**A. Program Outcomes**

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

<b>PO1</b>	Identify and recognize various congenital, developmental, inflammatory, infective, traumatic, metabolic, neuromuscular, degenerative and oncological disorders of the musculoskeletal system.
<b>PO2</b>	Provide competent professional services to trauma and Orthopaedic diseases (congenital, developmental, inflammatory, infective, metabolic, neuromuscular, degenerative and oncological) patient at primary, secondary, tertiary health care centers.
<b>PO3</b>	Demonstrate empathy and humane approach and good communication skills towards patients and their families and exhibit interpersonal behavior in accordance with the societal norms and expectations
<b>PO4</b>	Demonstrate professionalism.
<b>PO5</b>	Acquire skills as a self-directed learner, recognize continuing education needs, select and use appropriate learning resources.
<b>PO6</b>	Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
<b>PO7</b>	Demonstrate teaching skills using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
<b>PO8</b>	Function as an effective leader of a health team engaged in health care, research or training.




**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:

Corelation Level	Particulars
3	Substantial/high contribution of CO towards PO
2	Moderate contribution of CO towards PO
1	Sligh/Low contribution of CO towards PO

Course Name		CO-PO Mapping (Articulation Matrix)							
Orthopedics		CO-PO Mapping (Articulation Matrix)							
Course Outcomes (COs)		CO-PO Mapping (Articulation Matrix)							
At the end of the course the students will be able to:		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
CO1	Demonstrate sufficient understanding of the basic sciences relevant to Orthopaedic specialty through a problem- based approach	3	2			1	1		
CO2	Describe the principles of traumatic injury, its mechanism, clinical presentation and plan & interpret appropriate laboratory and radio diagnostic imaging investigations & institute appropriate management including rehabilitation of a musculoskeletal injured patient.	3	3			2			
CO3	Discuss the aetiopathogenesis, clinical presentation of congenital, developmental, inflammatory, infective, metabolic, neuromuscular, degenerative and oncological musculoskeletal disorders (Orthopaedic) and plan & interpret appropriate laboratory and radio diagnostic imaging investigations & institute appropriate management including rehabilitation for the same.	2	2			2		1	2
CO4	Demonstrate sufficient knowledge regarding the recent advances taking place in the field of Orthopaedics	2	2			3	2		
CO5	Identify a problem, prepare a research protocol, conduct a study, record observation and analyses data, interpret result, discuss and disseminate the finding.						3		



1.1.1 Outcome Analysis of POs, COs - MS Orthopaedics (2019-2022)

CO6	Understand the basic principles of biomaterials and Orthopaedic metallurgy.	3	2			1	1		
CO7	Demonstrates knowledge of the medico-legal aspects of trauma and Orthopaedic disease.	3	2			1			
CO8	Elicit and record from the patient., and other relevant sources including relatives and caregivers, a history that is complete and relevant to Orthopaedic trauma and disease	3	3						
CO9	Perform examinations of musculo-skeletal relevant to trauma & Perform clinical system that is complete and Orthopaedic disease identification, disease. prevention, and health promotion	3	3						
CO10	Demonstrate effective clinical problem solving, judgment, ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive & therapeutic goals for Orthopaedic trauma and disease.	3	3			2			
CO11	Perform basic Orthopaedic procedures & surgeries as applicable to a primary, secondary care center.		3		3				
CO12	Assist advance and complex Orthopaedics surgeries as applicable to secondary and tertiary care centers.		2		2				
CO13	Demonstrate ability to communicate adequately, sensitively, effectively, and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes				3			3	3
CO14	Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities, and competencies of other professionals.		2	2	3			3	3
<b>Course-wise PO Average</b>		<b>1.563</b>	<b>1.813</b>	<b>0.313</b>	<b>0.875</b>	<b>0.750</b>	<b>0.438</b>	<b>0.500</b>	<b>0.625</b>



**C. Program outcome Reference Value:**

Following table calculates the overall average of all POs of the Courses and is referred as average PO Reference values.

Course Title	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
Orthopaedics	1.563	1.813	0.313	0.875	0.750	0.438	0.500	0.625
<b>Combined Average PO Reference values</b>	<b>1.563</b>	<b>1.813</b>	<b>0.313</b>	<b>0.875</b>	<b>0.750</b>	<b>0.438</b>	<b>0.500</b>	<b>0.625</b>

  


### D. Assessment of CO and PO Attainment Value

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

Attainment Levels	Criteria
3	If 80% of student achieves marks greater than threshold percentage of the total score of assessment
2	If 70% of student achieves marks greater than threshold percentage of the total score of assessment
1	If 60% of student achieves marks greater than threshold percentage of the total score of assessment
0	If 60% of student achieves marks less 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 University Examination (UE) individually. For the MS program the threshold percentage is set at 50% for University Examination.

	Course Title	Attainment of COs	Derived Attainment of POs Course-wise							
			PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8
	Orthopaedics	3.000	1.563	1.813	0.313	0.875	0.750	0.438	0.500	0.625
<b>Average PO Achievement Through Results</b>			1.563	1.813	0.313	0.875	0.750	0.438	0.500	0.625
<b>Average PO Reference values</b>			1.563	1.813	0.313	0.875	0.750	0.438	0.500	0.625
<b>Percentage Attainment of PO's</b>			100%	100%	100%	100%	100%	100%	100%	100%

From the 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:

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

  
