स्वामी राम हिमालयन विश्वविद्यालय
Swami Rama Himalayan University

Criterion 1 - Curricular Aspects

1.1.1 Outcome Analysis of POs, COs
M.Ch. Neurosurgery (2019-2022)

Himalayan Institute of Medical Sciences

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A. Program Outcomes

After successful completion of the program, the student will:

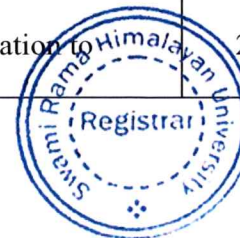| PO1	Be well acquainted with the current literature on relevant aspects of the basic, investigative, clinical and operative neurosciences (in subjects of Neuro-anatomy, Neuro-physiology, Neuro-chemistry, Neuro-pathology, Neuro-pharmacology, Neuro-radiology, Neuro-medicine, Neuro-radiation and Neurosurgery)
PO2	Be able to effectively communicate and counsel about the nature of the disease and the steps of procedures with the patient and relatives and take a proper informed consent before the procedures and surgeries and maintain medical records
PO3	Be able to diagnose, plan and interpret investigations and treat common conditions in Neurosurgery by relevant current therapeutic methods (medically and surgically) and ensure timely referrals
PO4	Be capable of imparting basic neurosurgical training
PO5	Be able to identify, frame and carry out research proposals in Neurosurgery

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	Slight/low contribution of CO towards PO

Course Name	Neurosurgery					
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**
CO1	Explain and teach embryology, gross and microscopic anatomy of components of central, peripheral and autonomic nervous system	3	1	2	3	3
CO2	Correlate the clinical features of raised intracranial pressure to the patho-physiology of its generation and explain the relatives about the possible course of events	2	3	2	2	2
CO3	Analyse and train about the pharmacokinetics and pharmaco-dynamics of common neuro-pharmaceutical agents like anti-epileptics, antiedema measures, analgesics, neuro-anesthetic agents, antibiotics, anti-tubercular agents, anticoagulants, chemotherapeutic agents, contrast agents used for CT and MRI.	3	2	3	3	2
CO4	Interpret and demonstrate different ventilator settings, types of ventilation, techniques of monitoring and resuscitation, selection of agents used for medical paralysis, hypnosis and reversal in ICU	2	1	2	3	2
CO5	Analyse, interpret and communicate about the need of different radiological investigations like Xray, CT, and MRI with its clinical relevance and application to patients, relatives and students	2	3	3	3	2

CO6	Decide and communicate effectively with the relatives to help them choose from amongst the modalities of radiation and chemotherapy for the adjuvant treatment of neoplastic disorders of neural axis	3	3	3	2	2
CO7	Clinically evaluate, investigate and treat common traumatic, neoplastic, degenerative, congenital, vascular, biochemical disorders of brain and spine and impart this knowledge for quality research and training	3	3	2	3	3
CO8	Analyze and simulate the real life scenarios for the demonstration of functioning of OT table, Operative microscope, CUSA, high speed drill and other equipments and teaching the correct techniques of patient preparation, positioning, surface marking and different surgical approaches	2	1	2	3	2
CO9	Life long learner by adapting recent advances in Neurosurgery including stem cell therapy, gene therapy, robotics, brain mapping and artificial intelligence and using it for quality research	2	3	1	2	3
CO10	Role model teacher who could impart knowledge and transfer the acquired skill to junior residents, nursing and paramedical staff and other colleagues about common neurosurgical ailments	2	3	3	3	1
CO11	Carry out quality research with available resources and patient database, to think innovatively to plan for patents by designing and motivating the colleagues and juniors for the research.	2	2	1	3	3
	Course-wise PO Average	2.36	2.27	2.18	2.73	2.27

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
Neurosurgery	2.36	2.27	2.18	2.73	2.27
Combined Average PO Reference values	2.36	2.27	2.18	2.73	2.27

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 M.Ch. program the threshold percentage is set at 50% for UE assessment.

Course Title	Attainment of COs	Derived Attainment of POs Course-wise				
		PO-1	PO-2	PO-3	PO-4	PO-5
Neurosurgery	3.000	2.36	2.27	2.18	2.73	2.27
Average PO Achievement Through Results		2.36	2.27	2.18	2.73	2.27
Average PO Reference values		2.36	2.27	2.18	2.73	2.27
Percentage Attainment of PO's		100%	100%	100%	100%	100%

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

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

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:

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