



INSTITUTE	FACULTY OF PHYSIOTHERAPY
PROGRAM	BACHELOR OF PHYSIOTHERAPY
YEAR	4
COURSE TITLE	PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS
COURSE CODE	17PT0402
COURSE CREDITS	5

Course Outcomes: After completion of this course, student will be able to:

- 1 Acquire the knowledge of normal neurodevelopment with specific reference to locomotion
- 2 Assess, identify and analyze neuro motor and psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements, sensations, perceptions etc
- 3 Correlate the assessment findings with provisional diagnosis and investigations such as EMG/NCS and arrive at Physical and functional diagnosis with clinical reasoning in various neuromuscular disorders
- 4 Plan, prescribe and execute short term and long-term treatment with special reference to relief of neuropathic and psychosomatic pain and use of various physiotherapeutic techniques/ modalities, including ergonomic advice and parent education in Neuro pediatric cases
- 5 Prescribe appropriate outhouses/splints and fabricate temporary protective and functional splints.

Pre-requisite of course: A basic understanding of neurology, physical and functional diagnosis, exercise therapy and electro therapy is often a fundamental prerequisite.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
80	0	40	50	30	20	50	50

Contents : Unit	Topics	Contact Hours
1	Review of basic neuro anatomy and physiology. Review of basic neuro anatomy and physiology.	3
2	Physiotherapy techniques to improve tone, voluntary control, co-ordination Physiotherapy techniques to improve tone, voluntary control, co-ordination	3
3	Neuro physiotherapeutic Techniques: Concepts, principles, techniques and effects NDT & PNF, Brunnstrom movement therapy, Vojta therapy, Rood's sensory motor approach & Contemporary task oriented approach	2
4	Application of skills as PNF, co-ordination, functional re-education, balancing exercise by using techniques based on	2



	neuro physiological principles Application of skills as PNF, co-ordination, functional re-education, balancing exercise by using techniques based on neuro physiological principles	
5	Tools used for neuro rehabilitation like vestibular balls, tilt board etc. Tools used for neuro rehabilitation like vestibular balls, tilt board etc.	1
6	Application of transfer, functional re-education exercises & gait training Application of transfer, functional re-education exercises & gait training	2
7	Bladder training Bladder training	1
8	Developing a philosophy for caring Developing a philosophy for caring	1
9	Prescription of appropriate orthotic devices & fabrication of temporary splints Prescription of appropriate orthotic devices & fabrication of temporary splints	1
10	Lifting techniques, wheel chair modifications, adaptive devices Lifting techniques, wheel chair modifications, adaptive devices	2
11	Ergonomic advice for prevention/rehabilitation to the patients / parents /caregivers Ergonomic advice for prevention/rehabilitation to the patients / parents /caregivers	2
12	Education about handling of a patient Education about handling of a patient	2
13	Pediatric Neuro-physiotherapy Use of various Neurophysiologic approaches & modalities in high risk babies and minimum brain damage, Use of various Neurophysiologic approaches & modalities in cerebral palsy and developmental disorders , Use of various Neurophysiologic approaches & modalities in Down's syndrome, Hydrocephalus and Spina bifida	9
14	Assessment & management of brain Disorders Stroke and Head Injury, Meningitis and Encephalitis, Parkinson's disease and parkinsonism syndromes, Multiple sclerosis and Brain tumors	18
15	Assessment & management of spinal cord lesions and bladder dysfunction Multiple sclerosis, transverse myelitis and Poliomyelitis/PPRP,, Syringomyelia, spinal cord injury and sub acute combined degeneration of spinal cord, Motor neuron disease (ALS, SMA and other types) and spinal tumors	10
16	Assessment & Management of Co-ordination Disorders Ataxia and Friedrich's ataxia, Cerebellar ataxia and Sensory ataxia.	4
17	Assessment & Management of Muscle Disorders Muscular dystrophy (DMD) & other myopathies	2
18	Assessment & Management of disorders of neuromuscular junction	2



	Myasthenia Gravis	
19	Assessment & management of neuropathies and nerve injuries Cranial nerves and Peripheral nerves, Polyneuropathy – Classification of Polyneuropathies	4
20	Pre and post-surgical assessment & management in neuro surgery Hydrocephalus and myelomeningocele, C.V. junction anomalies, syringomyelia	4
21	Electro diagnostic procedures and prognosis in neurological disorders SD curves, EMG & NCS	5
Total Hours		80

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Practicals/OPD/Case Presentation Practicals/OPD/Case Presentation	40
Total Hours		40

Textbook :

- 1 Physical Rehabilitation- 7th edition, Susan B. O'Sullivan, F A Davis, 2019
- 2 Cash's textbook of Neurology for Physiotherapists, Cash Joan E., Elsevier Health Sciences, 1993
- 3 Physiotherapy in Neuro Conditions, Gladys Samuel Raj, Jaypee Brothers Medical Publishers, 2006

References:

- 1 Neurological Rehabilitation, Neurological Rehabilitation, D Umphred, Mosby, 2012
- 2 Paediatric developmental therapy, Paediatric developmental therapy, Sophie Levitt, Wiley-Blackwell, 2018
- 3 Clinical Neurophysiology, Clinical Neurophysiology, U.K. Misra, Elsevier, 2013

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
20.00	20.00	30.00	10.00	10.00	10.00

Instructional Method:

- 1 Classroom teaching, case presentations, clinical practice



Supplementary Resources:

- 1 <https://strokengine.ca/en/>
- 2 https://www.physio-pedia.com/Neurological_Disorders