

Branch Name:	Bachelor of Physiotherapy
Program Code:	PT101
Course Title:	Physiotherapy in Neurological Conditions
Course Code:	2PT1010401
Pre-requisite Course:	Human Anatomy & Physiology, Exercise Therapy I, Electro Therapy, Physical & Functional Diagnosis, Medicine II

COURSE OUTCOMES:

At the end of the course the candidate will be able to

1. To acquire the knowledge of normal neurodevelopment with specific reference to locomotion.
2. To 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. To 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. To 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. To prescribe appropriate orthoses/splints and fabricate temporary protective and functional splints.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)			Credit	Evaluation Scheme (Marks)				
Lecture	Tutorial	Practical		Theory(T)		Practical(P)		Total Marks
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
03	-	0.5	6.5	80	20	80	20	200

Subject Contents:

Sr. No.	Topic	Hours
1	Review of basic Neuro anatomy and physiology	02
2	Physiotherapy techniques to improve tone, voluntary control, coordination	05
3	Neuro physiotherapeutic Techniques: Concepts, principles, techniques and effects of: NDT, PNF, Brunnstrom movement therapy, Vojta therapy, Rood's sensory motor approach, Contemporary task-oriented approach.	10
4	Application of skills as PNF, co-ordination, functional re- education, balancing exercise by using techniques based on neuro physiological principles.	10
5	Tools used for neuro rehabilitation like vestibular balls, tilt board etc	05
6	Application of transfer, functional re-education exercises & gait training.	05
7	Bladder training.	02
8	Developing a philosophy for caring.	01
9	Prescription of appropriate orthotic devices & fabrication of temporary splints.	02
10	Lifting techniques, wheel chair modifications, adaptive devices.	05
11	Ergonomic advice for prevention/rehabilitation to the patients / parents /caregivers	05
12	Education about handling of a patient.	01
13	Pediatric Neuro-physiotherapy	15

	Use of various Neurophysiological approaches & modalities in high risk babies, minimum brain damage, developmental disorders, Cerebral palsy, Down's syndrome, Hydrocephalus, Spina bifida	
14	Assessment & management of brain Disorders Stroke, Meningitis, Encephalitis, Head Injury, Parkinson's disease, parkinsonism syndromes, Multiple sclerosis, Brain tumors	15
15	Assessment & management of spinal cord lesions and bladder dysfunction Multiple sclerosis, transverse myelitis, Poliomyelitis/PPRP, syringomyelia, spinal cord injury and sub acute combined degeneration of spinal cord, Motor neuron disease (ALS, SMA and other types), spinal tumors	15
16	Assessment & Management of Co-ordination Disorders Ataxia, Friedreich's ataxia, Cerebellar ataxia, Sensory ataxia	15
17	Assessment & Management of Muscle Disorders Muscular dystrophy (DMD) & other myopathies	05
18	Assessment & Management of disorders of neuromuscular junction Myasthenia Gravis	02
19	Assessment & management of neuropathies and nerve injuries Emphasis on 5 th , 7 th and 8 th cranial nerves, Peripheral nerves, Polyneuropathy – Classification of Polyneuropathies	05
20	Pre and post-surgical assessment & management in neuro surgery Hydrocephalus and myelomeningocele, C.V. junction anomalies, syringomyelia	03
21	Electro diagnostic procedures and prognosis in neurological disorders SD curves, EMG & NCS.	05

Text Books:

1. Physical Rehabilitation. Susan B. O'sullivan, Thomas J. Schmitz, George D. Fulk - 6th Edition.
2. Tecklin's Pediatric Physical Therapy. Elena McKeogh Spearing, Eric S. Pelletier, Mark Drnach - 6th Edition.
3. Umphred's Neurological Rehabilitation. Darcy A. Umphred, Rolando T. Lazaro, Margaret L. Roller, Gordon U. Burton- 6th Edition.
4. Cash's Textbook of Neurology for Physiotherapists. Downie, Patricia- 4th Edition.

Reference Books:

1. Physiotherapy in Neuro-conditions. Gladys Samuel Raj- 1st Edition.
2. Functional Neurorehabilitation: Through the life span. Bertoti, Dolores B.- 1st Edition.
3. Physiotherapy in Neurological Conditions with Assessment and Treatment Protocols. Potturi, Gowrishankar- 1st Edition.

List of Open Source Software/learning website:

- k-hub.in e library/A single platform for all e resources (K-hub, E Resource)
○ User Name- KB4605VNG
○ Password- BL@69BX!
- knowledgegainer.delnet.in (Delnet, E Resource)
○ User Name- gjspum
○ Password- spu10924

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Discuss the use of various neurophysiological approaches and brain function.	1 Remembering 2 Understanding
CLO2	List the various types of neurological and pediatric conditions and be able to conduct detailed assessments and evaluations for patients with neurological conditions.	1 Remembering 2 Understanding
CLO3	Acquire and translate the fundamentals of application of various neurophysiological techniques in the evaluation and treatment of disorders of the nervous system.	2 Understanding 3 Applying 5 Evaluate
CLO4	Understand the basic electro diagnostic procedures & understand the interpretation in various neurological disorders.	1 Remembering 2 Understanding 3 Applying 4 Analyzing 5 Evaluate
CLO5	Learn the basic concept of Cranial nerves and evaluate abnormality associated with them, identify and compare the various pathological conditions related to cranial nerves.	1 Remembering 2 Understanding 3 Applying 5 Evaluate
CLO6	Discuss and perform the assessment and management of spinal cord and brain disorders.	1 Remembering 2 Understanding

Mapping of CLOs with Pos & PSOs

Course Learning Outcomes	Program Outcomes (POs)								Program Specific Outcomes (PSOs)							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CLO1	H			M					M							M
CLO2		M			M					L	M				M	
CLO3	M		H					M			H	L				
CLO4				M									M			
CLO5					M	M	L						H	M	M	
CLO6		M						L		M						M

H: High, M: Medium, L: Low