

Master of Physiotherapy

Era University, Lucknow

Course Outline

Effective

From: 2024-25

Name of the Program	Master of Physiotherapy(Neurosciences)			Year/Semester:	II year/IVth
Course Name	Neurological Conditions & Management - II	Course Code:	MPT402N / MPP402N	Type:	Theory & Practical
Credits	04+01			Total Sessions Hours:	60+20 Hours
Evaluation Spread	Internal Continuous Assessment:		30 Marks	End Term Exam:	70Marks
Type of Course	Compulsory		✓ Core	Creative	Life Skill
Course Objectives	<ul style="list-style-type: none"> To develop advanced knowledge, clinical expertise, and evidence-based decision-making skills in physiotherapy interventions for neuromuscular conditions, enhancing professional competence through hands-on practice, clinical reasoning, and reflective learning. 				
Course Outcomes (CO): After successful completion of the course, the student will be able to-					
CO1	<ul style="list-style-type: none"> Perform comprehensive assessments and evaluations, including detailed patient history, clinical features, examinations, and investigations, for accurate diagnosis. Demonstrate proficiency in planning and implementing physiotherapy interventions to manage pain, functional loss, postural control, and mobility disorders effectively. 				
CO2	<ul style="list-style-type: none"> Explain the anatomy, physiology, pathophysiology, etiology, and classification of disorders affecting the brain, spinal cord, peripheral nerves, neuromuscular junction, and muscles. 				
CO3	<ul style="list-style-type: none"> Gain the ability to design and implement physiotherapy interventions for conditions like spinal cord injury, GBS, and motor neuron disorders, focusing on improving functional independence and quality of life. 				
Pedagogy	Interactive, discussion-based, student-centered, presentation.				
Internal Evaluation Mode	Mid-term Examination: 30 Marks Class test: 12 Marks Class participation or any other : 04 Marks Assignments/Project: 04 Marks Attendance: 04 Marks Class Presentation: 04 Bed Side behavior or Interaction in Class: 02				
Session Details	Topic			Hours	Mapped CO
Unit1	Central Nervous System Disorders: <ul style="list-style-type: none"> Spinal Cord Disorders Spinal Cord Injury, syndromes of spinal cord injury, conus medullaris syndrome, cauda equina syndrome, bladder & bowel dysfunction, types of neurogenic bladder & bowel Infections of Brain and Spinal Cord Meningitis, encephalitis, poliomyelitis Motor Neuron Diseases Amyotrophic Lateral Sclerosis, Spinal Muscle Atrophy 			20	CO1

Unit 2	Peripheral Neuromuscular Disorders: <ul style="list-style-type: none"> • Disorders of Neuromuscular Junction Myasthenia gravis • Muscle Diseases Muscular dystrophy, myopathies • Polyneuropathy Gullain Barre Syndrome 	20	CO2
Unit3	Pediatric Neurology : <ul style="list-style-type: none"> • Cerebral palsy • hydrocephalus • autism •ADHD 	20	CO3
Practical	<ul style="list-style-type: none"> • Neurological subjective assessment in detail (Demographic data, Chief complain,History) • Neurological Objective assessment in detail(Gait,Balance, Coordination) • Sensory Examination in detail (Dermatome, Superficial and deep sensation, Stereognosis, Graphesthesia, two point discrimination, position sense) • Motor Examination (Muscle bulk, Muscle power, Muscle tone, superficial and deep reflexes) • Brain CT and MRI image interpretation • EEG Interpretation • NCV and EMG interpretation • Interpretation of laboratory findings (Blood, CSF) • Documentation of subjective and objective findings for different neurological and neurosurgical case 	20 hours	

CO-PO and PSOMapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	1	3	3	1	1	3	2	-	-	-	-	-	-
CO2	3	2	2	2	2	3	2	2	-	-	-	-	-	-
CO3	1	1	1	2	3	2	2	2	-	-	-	-	-	-
CO4														
CO5														
CO6														

Strongcontribution-3, Averagecontribution-2, Lowcontribution-1,

Suggested Readings:

Reference Books	<ol style="list-style-type: none"> Physical Rehabilitation: by Susan B. O'Sullivan Neurological Rehabilitation: by Darcy Umphered, Elsevier Health Sciences. Early diagnosis and therapy in cerebral palsy: by Alfred.Scherzer, Ingrid Tschermutter, M.Dekker. Stroke Rehabilitation: Guidelines for exercise and training to optimize motor skill by Janet Carr and R. Shepherd(Elsevier, 2003) Neurological Rehabilitation, Optimizing motor performance by Janet Carr and Shepherd (Butterworth andHeinemann Ltd, 2004)
ParaText	<ol style="list-style-type: none"> https://youtu.be/oZGFrwogx14?si=HtY2RZCbcb9d1yIJ https://youtu.be/1R7ps4CK-iw?si=6aZateWN2lkdr_k https://youtu.be/3CYuZHwBOrk?si=PhFALcNVStOwZnqi https://youtu.be/BM0P-iLSlfs?si=ZDETNNv94QJ-8wI6 https://youtu.be/wkDiOCIX_xA?si=oefGWjiT78UrI07W

6. <https://youtu.be/3ou46UyvAvw?si=z3OXvYXgoEaptBUM>

Recapitulation&ExaminationPattern

InternalContinuousAssessment:

Component	Marks	Pattern
Class test	12	Contains 01 long question. question carries 04Marks. 02 Short questions. Each question carries 02Marks 04 multiple choice questions. Each question carries 01Marks
Class participation or any other	04	This to be made on activities and instruction given by subject teacher.
Marks Assignments/Project:	04	Assignment to be made on topics and instruction given by subject teacher
Class Presentation:	04	This to be made on topics and instruction given by subject teacher
Bed Side behavior or Interaction in Class	02	This to be made on activities and instruction given by subject teacher.
Attendance	04	As per policy
Total Marks	30	

Department of Physiotherapy
Era University, Lucknow
Course Outline
Effective From: 2025-26

Name of the Program	Master of Physiotherapy(Neurosciences)		Year/ Semester:	2nd year/4th Sem	
Course Name	NEUROPHYSIO-THERAPUTICS II	Course Code:	MPT401N/ MPP401N	Type:	Theory
Credits	04+01		Total Sessions Hours:	60+20 Hours	
Evaluation Spread	Internal Continuous Assessment	30 Marks		End Term Exam:	70 Marks
Type of Course	Compulsory	• Core		Creative	Life Skills
Course Objectives	1. Incorporate evidence based practice into clinical decisions of patient care and Management.				
Course Outcomes (CO): <i>After the successful course completion, learners will develop following attributes:</i>					
CO1	Theoretical Foundations				
CO2	Clinical Application & Skill Integration				
CO3	Technology & Innovation Integration				
CO4	Evidence-Based & Research Orientation				
CO5	Professionalism, Ethics & Lifelong Learning				
Pedagogy	Interactive, discussion-bases, student-centered, presentation.				
Internal Evaluation Mode	1. Attendance: 2. Project/Assignment 3. Class Participation 4. Presentations 5. Bedside Behavior/Class discipline 6. Written Exam:				
Session Details	Topic			Hours	Mapped CO
UNIT 1	Neuroplasticity & Cognitive-Motor Approaches 1. Neural plasticity–based treatment 2. Mental Imagery Technique 3. Mirror Box Therapy 4. Mime Therapy 5. Neurodynamic in neurological conditions 6. Neural Mobilization			20	CO1, CO2, CO4
UNIT 2	Manual & Adjunct Therapeutic Approaches 1. CranioSacral Therapy 2. Matrix Rhythm Therapy 3. IASTM 4. Dry Needling 5. Cupping Therapy			20	CO1, CO2, CO5

	6. CIMT 7. Floatation Therapy 8. Whole Body Vibration & Neuromuscular Techniques 9. Pilates Therapy 10. Hippotherapy		
UNIT 3	Technology-Driven Neuro Rehabilitation <ul style="list-style-type: none"> Virtual Reality Therapy / Virtual Clinic Robotic Movement Therapy Tele-Rehabilitation Artificial Intelligence in Physiotherapy AI-based Rehabilitation Models 	10	CO2, CO3, CO4, CO5
UNIT 4	Neuromodulation & Advanced Neurotechnologies <ul style="list-style-type: none"> Transcranial Direct Current Stimulation (tDCS) Transcranial Magnetic Stimulation (TMS) Integration of Neuromodulation with Conventional Therapy 	10	CO1, CO2, CO3, CO5
Practical	<ul style="list-style-type: none"> Virtual Reality Demonstration Practice progressive motor learning stages using task-specific training. Hands-on training with CIMT Pilates Therapy Techniques Hands-on training with Floatation Therapy. Demonstrate Artificial Intelligence in Physiotherapy 		20 hours

CO-PO and PSO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	2	1	-	2	-	-	1
CO2	3	2	2	3	2	-	2	-	-	1
CO3	3	3	2	3	2	2	3	-	-	1
CO4	2	3	1	2	1	-	3	-	-	2
CO5	2	1	3	2	3	1	3	-	-	1

Strong contribution-3, Average contribution-2, Low contribution-1.

Suggested Readings:

Text- Books	1. Textbook of rehabilitation – Darcy A Umphred
Reference Books	1. Neurological rehabilitation: Susan O’Sullivan
Para Text	

Recapitulation & Examination Pattern

Internal Continuous Assessment:

Component	Marks	Pattern
Mid Semester	12	As per University Pattern
Class Test	04	

Class Presentation/Discipline	04	
Assignment/ Project	04	
Bedside Behavior	02	
Attendance	04	As per Policy
Total Marks	30	