



TEERTHANKER MAHAVEER UNIVERSITY

(Established under Govt. of U. P. Act No. 30, 2008)

Delhi Road, Moradabad (U.P.)

PhD PROGRAMME

SYLLABUS FOR DISCIPLINE-SPECIFIC COURSE PHYSIOTHERAPY (MUSCULOSKELETAL)

Course Code: PDS240114	Musculoskeletal rehabilitation & advances	L	T	P	C
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Objective:	In this course, one will develop clinical reasoning with evidence that integrates the effect of Physiotherapy into musculoskeletal conditions. They shall also know about the recent advancements in rehabilitating musculoskeletal conditions.				
Course Outcomes:	On completion of the course, students will be able to:				
CO 1:	Understand and apply the recent advances and techniques in rehabilitating musculoskeletal disorders.				
CO 2:	Apply the principles of Exercise Physiology.				
CO 3:	Analyze community-based rehabilitation in musculoskeletal conditions.				
CO 4:	Analyze the exercise performance.				
CO 5:	Create the exercise prescription.				
Course Content:					
Unit 1:	RECENT ADVANCES: Functional integrated aquatic therapy, application of virtual and augmented reality in musculoskeletal rehabilitation, Artificial intelligence in musculoskeletal physiotherapy, Pain sciences and biopsychosocial model in musculoskeletal physiotherapy, an evolving concept in mulligan, kinanthropometry, evolving concepts and studies on cyriax concept, Maitland techniques, MFR, McKenzie, MET, PRT, pilates, chiropractic and osteopathic school of thought, recent advances and controversies in manual therapy and grey areas in research.				
Unit 2:	EXERCISE PHYSIOLOGY: ENERGY PRODUCTION, EXPENDITURE AND TRANSFER Energy transfer in cells during exercise oxygen metabolism and transfer during metabolism oxygen transport in the blood oxygen deficit and oxygen debt oxygen measurement during exercise and recovery Energy release from carbohydrates, lipids, and protein BMR - during rest and activity Energy expenditure during activity Short-term and long-term energy system				

Unit 3:	<p>EXERCISE PERFORMANCE: Lung function & its role in exercise performance Regulation of ventilation and blood pressure during exercise Cardiovascular adjustment during exercise Muscle fiber, types and its role in exercise performance Ventilation during steady and non-steady rate exercise Energy cost and breaking Blood pressure response to exercise Cardiac output during exercise in trained/untrained Cardiovascular drift</p>
Unit 4:	<p>RECENT ADVANCES AND EVIDENCE-BASED PRACTICE IN THE REHABILITATION OF MUSCULOSKELETAL CONDITIONS</p>
Unit 5:	<p>COMMUNITY PHYSIOTHERAPY: Population studies and epidemiological implications of impairment, handicap, and disability. Evidence-based practice in community health and community rehabilitation. Evidence-based practice and recent advances in women's health physiotherapy, mother and child care. Health promotion and recent advances in the role of physiotherapy in industrial health, geriatrics health. Psychosomatic approaches in the management of disorders of stress.</p>
Textbooks:	<ol style="list-style-type: none"> 1. Orthopaedic Physical Assessment by David Magee. 2. Outline of Orthopedics — John Crawford Adams. 3. Clinical Orthopaedic Rehabilitation 2nd edition Brotzman B.
Reference Books:	<ol style="list-style-type: none"> 1. Apley's textbook of orthopedics and fractures by Apley's 7th edition B/H publications. 2. Orthopaedics: Principles & Their Application by Turek's. 3. Physical Therapy of the Shoulder by Donatelli R. 4. Managing low back pain. Kirkaldy- Willis <p>* The latest editions of all the suggested books are recommended</p>