



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(CARDIOPULMONARY)

Course Code: PDS240113	Cardiopulmonary 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 cardiopulmonary conditions. They shall also know about the recent advancements in rehabilitation for cardiopulmonary conditions.				
Course Outcomes:	On completion of the course, students will be able to:				
CO 1:	Understand and apply the recent advances and techniques in the rehabilitation of cardiopulmonary conditions.				
CO 2:	Applying the principles of Exercise Physiology.				
CO 3:	Analyze community-based rehabilitation in cardiopulmonary conditions.				
CO 4:	Analyze the exercise performance.				
CO 5:	Create the exercise prescription.				
Course Content:					
Unit 1:	RECENT ADVANCES: BFR training, High flow nasal cannula, inspiratory muscle training, virtual reality in pulmonary rehabilitation, Extracorporeal membrane oxygenation, precision medicine in cardiorespiratory patients, Advanced Airway techniques, Tele rehabilitation in cardiopulmonary care, neuromuscular electrical stimulation in critical care, cardiorespiratory exercise testing, microbiome considerations in respiratory care, high-intensity interval training, cardiac resynchronization therapy, ECG.				
Unit 2:	EXERCISE PHYSIOLOGY: ENERGY PRODUCTION, EXPENDITURE AND TRANSFER Energy transfer in cells during exercise Oxygen metabolism and transfer during metabolism Oxygen transportation in blood Oxygen deficit and oxygen debt Oxygen measurements 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:	EXERCISE PERFORMANCE: Lung function & its role in exercise performance Regulation of ventilation and blood pressure during exercise Cardiovascular adjustment during exercise				

	<p>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:	RECENT ADVANCES AND EVIDENCE-BASED PRACTICES IN CARDIORESPIRATORY CONDITIONS
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. Cardiovascular and Pulmonary Physical Therapy By Donna frownfelter & Elizabeth Dean. 2. Diagnosis and Management of acute respiratory failure By Farokh erach Udawadia. 3. Physiotherapy in Respiratory Care By Alexandra Hough. 4. Physiotherapy for Respiratory and cardiac problems – adults and pediatrics By Jenifer Pryor & S. Ammani Prasad. 5. Cardiopulmonary physical therapy by Donna frownfelter. 6. Principles of cardiopulmonary physical therapy by Asbury & Petty. 7. Cardio pulmonary physical therapy by Helen Hillegas, (Saunders). 8. PT for RT & cardiac problems by Weber. 9. Physiotherapy in respiratory care by Hough a Jaypee Publishers, Baltimore 10. Cardiopulmonary symptoms in physiotherapy by Cohen M, Churchill, Livingstone, London 11. Physical rehabilitation: assessment and treatment by O’Sullivan, F.A Davis, Philadelphia 12. Clinical application of ventilatory support by Kinky Churchill, Livingstone, New York
Reference Books:	<ol style="list-style-type: none"> 1. Cardiopulmonary symptoms in physiotherapy practice – Cohen M., Churchill Livingstone, London 1988. 2. Pulmonary rehabilitation: guidelines to success by Bodkins, Butterworth, Boston. 3. Cardiac rehabilitation by Amundsen lord, Churchill, Livingstone, London. 4. Physical therapy of the cancer patient by McGaryex Charles, Churchill, Livingstone, New York. 5. Multidisciplinary approach to breathing disorder by Leon. 6. Clinical Exercise testing by Jones. 7. Pulmonary rehabilitation. The Obstructive and Paralytic Conditions by John. 8. Coronary artery disease essentials of prevention and Rehabilitation Program by Peter. 9. Pulmonary Rehabilitation by John Hodgkin (Elsevier). 1. *Refer Latest editions of the books