GANPAT UNIVERSITY										
FACULTY OF HEALTH AND ALLIED SCIENCES										
Program	**Bachelor of Physiotherapy (BPT)**						**Branch**			
Year	**4**						**Version**			1.0.0.0
Effective from the Academic year			2025-26	**Effective for the batches admitted from**						2022-23
Course Code	BPT403		**Course Name**	**Physiotherapy in Cardio-respiratory & Medical Surgical Conditions**						
Teaching Scheme Per Year				**Examination Scheme**						
	Th	**Pr**	**Total**	**Marks**	**Internal**	**External**	**Total**	**Duration**	**Internal**	**External**
Hours	114	19	133	Theory	20 (15+5)	80 (55+25)	100	Theory	3 hr.	3 hr.
Credit	6.5			Practical	20	80	100	Practical	3 hr.	3 hr.
Prerequisite	Nil									

COURSE OBJECTIVES

1	To identify and analyze cardiovascular and pulmonary dysfunctions by integrating pathophysiological principles to formulate accurate physical and functional diagnoses.
2	To develop, implement, and evaluate physiotherapeutic strategies for cure, care, and prevention to enhance functional independence in both clinical and community-based settings.
3	To perform and critically assess therapeutic interventions such as breathing retraining, bronchial hygiene, mobilization, and exercise conditioning in medical, surgical, and intensive care environments using evidence-based clinical reasoning.
4	To acquire, demonstrate, and apply essential knowledge and skills in critical care physiotherapy—including artificial ventilation management, suctioning, patient monitoring, and cardiopulmonary resuscitation (CPR)—to provide timely and effective emergency care.
5	To understand, integrate, and implement physiotherapeutic approaches for a range of conditions, including obstetric, gynaecological, psychiatric and dermatological, ENT, and burn-related impairments, ensuring holistic patient care.

THEORY AND PRACTICAL SYLLABUS

Unit	Content	Hrs. (Th+Pr)
1	**Anatomy and physiology of respiratory system:** Anatomy of thorax, Biomechanics of thoracic cage, Muscles of respiration, Ventilation perfusion matching / mismatching, compliance	**02** (2+0)
2	**Diagnosis of cardio respiratory dysfunction:** Sub maximal /maximal exercise tolerance testing, Cardiac & Pulmonary radiographs, PFT, ABG, ECG, Hematological and biochemical Tests	**05** (5+0)
3	**Physiotherapy techniques to increase lung volume:** Positioning, breathing exercises, Neurophysiological facilitation of respiration, mechanical aids - Incentive spirometry, CPAP, IPPB	**10** (9+1)
4	**Physiotherapy techniques to decrease the work of breathing: Measures** to optimize the balance between energy supply and demand, positioning, Breathing re-education – Breathing control techniques, Mechanical aids: IPPB, CPAP, BIPAP	**10** (9+1)
5	**Physiotherapy techniques to clear secretions:** Hydration, Humidification & Nebulization, Mobilization and breathing exercises, Postural drainage **Manual techniques:** Percussion, vibration and shaking, ACBT, Autogenic Drainage, Mechanical aids: PEP, Flutter, IPPB, facilitation of cough and huff, suctioning	**10** (9+1)
6	**Physiotherapy in common complications following surgery and Drug therapy:** Drugs to prevent and treat inflammation, drugs to treat bronchospasm, Drugs to treat breathlessness, Drugs to help sputum clearance, drugs to inhibit coughing, Drugs to improve ventilation, Drugs to reduce pulmonary hypertension drug delivery doses, Inhalers and nebulizers	**05** (5+0)

7	**Introduction to ICU & mechanical ventilator:** ICU monitoring – apparatus, airways and tubes used in the ICU - Physiotherapy in the ICU – common conditions in the ICU, Mechanical ventilator: types, Modes of ventilator, Advantages and disadvantages Oxygen therapy, CPR, Aseptic precautions	**13** (11+2)
8	**Physiotherapy assessment & management techniques in Obstructive lung conditions:** Chronic bronchitis, Emphysema, Asthma, Bronchiectasis, Cystic fibrosis	**07** (6+1)
9	**Physiotherapy assessment & management techniques in Restrictive lung conditions:** Rib fracture, Pleural effusion, Pleurisy and empyema, Pulmonary embolism, Pulmonary tuberculosis, Atelectasis, pneumothorax, Bronchopulmonary fistula, Pneumonia, ARDS	**07** (6+1)
10	**Physiotherapy following Lung surgeries:** Pre- and post-operative physiotherapy, Assessment and management in Lobectomy, Pneumonectomy, Decortication, Thoracoplasty	**05** (4+1)
11	**Pulmonary Rehabilitation:** Definition, Aims and objectives, Team members, Benefits, Principles of exercise prescription and techniques of rehabilitation	**07** (6+1)
12	**Anatomy and physiology of cardiovascular system:** Anatomy, Blood supply and conduction system of heart	**01** (1+0)
13	**Physiotherapy assessment & management for cardiovascular Disorders:** Cardiovascular disease, Congestive heart failure, Myocardial infarction, valvular diseases of heart, Cyanotic and acyanotic congenital heart disease, Endocarditis	**05** (4+1)
14	**Cardiac Rehabilitation:** Definition, Aims and objectives, Team members, Benefits, Principles of Exercise prescription and techniques of rehabilitation	**07** (7+0)
15	**Physiotherapy assessment & management of vascular diseases:** 15.1 Venous: Thrombosis, Phlebitis and phlebo-thrombosis, Varicose veins, DVT, Venous Ulcers 15.2 Arterial: Berger's disease, acute and chronic arterial occlusion, lymphedema	**05** (4+1)
16	**Physiotherapy assessment & management for abdominal surgeries:** 16.1 Surgeries on upper gastro- intestinal tract - esophagus- stomach, duodenum 16.2 Surgery on large and small intestine – appendectomy, cholecystectomy, partial colectomy, ileostomy, nephrectomy 16.3 Hernia: herniotomy, herniorrhaphy, hernioplasty	**05** (4+1)
17	**Physiotherapy Assessment & management in onco- surgeries:** Mastectomy: simple, radical, Hysterectomy, prostatectomy, neck dissection	**05** (4+1)
18	**Physiotherapy in obstetrics and gynecology surgeries:** Electrotherapy and exercise therapy measures following pelvic repair and caesarean section	**05** (4+1)
19	**Wounds, local infections, ulcers, pressure sores:** UVR and other electrotherapeutic modalities for healing of wound, prevention of hyper granulated scars, relief of pain and Mobilization	**05** (4+1)
20	**Physiotherapy in burns, skin grafts and re-constructive plastic surgery**	**05** (4+1)
21	**Physiotherapy in ENT conditions & Psychiatric conditions:** 21.1. ENT Conditions: Nonsuppurative otitis media, chronic suppurative otitis media, otosclerosis, labyrinthitis and mastoidectomy resulting into facial palsy, laryngectomy, pharyngeo – laryngectomy, tracheostomy and its care, sinusitis 21.2. Psychiatric Conditions: Schizophrenia, depression, psychosis, anxiety	**03** (2.5+0.5)
22	**Physiotherapy in skin conditions:** 22.1 Leprosy 22.2 Acne 22.3 Alopecia 22.4 Psoriasis 22.5 syphilis	**02** (1+1)
23	**Emergency Care:** 23.1 Basic Life Support, 23.2 First aid 23.3 Emergency care 23.4 Biomedical waste management	**04** (3+1)
	Total	**128**

COURSE OUTCOME	
CO1	To be able to identify and analyze cardiopulmonary dysfunctions using pathophysiological principles for accurate diagnosis.
CO2	To develop physiotherapy strategies for cure, care, and prevention to improve functional independence across settings.
CO3	To be able to perform and evaluate interventions like breathing retraining, bronchial hygiene, mobilization, and exercise in various clinical conditions.
CO4	To gain proficiency in ICU physiotherapy, including mechanical ventilation, suctioning, positioning, monitoring, and CPR.
CO5	To develop skills to apply physiotherapy techniques in obstetric, psychiatric, ENT, dermatological, and burn rehabilitation cases.

COURSE ARTICULATION MATRIX

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	2	2	2	1	1	1	1
CO2	2	2	2	2	2	2	2	2
CO3	2	2	2	2	1	2	2	1
CO4	2	2	1	2	1	2	1	2
CO5	2	2	2	1	1	2	1	1

"-" No correlation "1" Low "2" Moderate "3" High

STRUCTURE OF QUESTION PAPER- Theory (Passing marks – 40)

Duration: 3 Hours

Section - I (55 marks)	Que. 1 Multiple Choice Question	6 x 01 = 06	All Mandatory
	Que. 2 Very Short Answer	2 x 02 = 04	(Any 2 out of 3)
	Que. 3 Short Answer	5 x 05 = 25	(Any 5 out of 6)
	Que. 4 Long Answer	2 x 10 = 20	(Any 2 out of 3)
Section – II (25 marks)	Que. 5 Multiple Choice Question	5 x 01 = 05	All Mandatory
	Que. 6 Short Answer	2 x 05 = 10	(Any 2 out of 3)
	Que. 7 Long Answer	1 x 10 = 10	(Any 1 out of 2)

BOOKS RECOMMENDED

Textbooks

1	Cash's Textbook for Physiotherapists in Chest, Heart & Vascular diseases;4th edition
2	Cash's text book in General Medicine & Surgical conditions for Physiotherapists; 2nd edition
3	Chest Physical therapy & pulmonary rehabilitation -- Donna Frown Filter; 7th edition
4	Brompton's hospital guide
5	Physiotherapy in respiratory and cardiac problem - Pryor and Prasad;4th edition
6	Physiotherapy in Cardio – Vascular rehabilitation –Webber;5th edition
7	Chest physiotherapy in intensive care Colin Mackenzie; 2nd edition
8	Mechanical ventilation – Ashfaq Hasan

Reference Books

1	Exercise & the Heart –Wenger; 2nd edition
2	ECG – P.J. Mehta;7th edition
3	Cardiopulmonary Physical Therapy – IrwinScott; 4th edition
4	Essential of cardio pulmonary physical therapy –Hillgass and Sodosky; 5th edition
5	Exercise physiology, energy, nutrition and human performance –M'cardle; 9th edition