

SYLLABUS

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596



सर्वे भवन्तु सुखिनः
MASTER OF PHYSIOTHERAPY (MPT)

IN CARDIO RESPIRATORY

Course Code: 297

(2024-25 Academic year onwards)

2024

2. COURSE CONTENT

2.1 Title of course:

MASTER OF PHYSIOTHERAPY IN CARDIO RESPIRATORY

2.2 Objectives of course

The Master of Physiotherapy Program is directed towards rendering training in the Cardio Respiratory Physiotherapy so as to enhance individual competence in order to fulfill requirement and to meet the global standards of Physiotherapy education and practice. Specific aims are:

1. To gain in knowledge of the human body related Basic Medical and Physiotherapeutic sciences relevant to Cardio Respiratory Physiotherapy.
2. To gain in knowledge of movement dysfunction of human body and evidence based Physiotherapeutic management for movement dysfunction
3. To develop skills in Physiotherapy assessment pertaining to Cardio Respiratory disorders by relevant current physiotherapeutic concepts.
4. To plan and implement appropriate Physiotherapeutic intervention for all clinical conditions related to Cardio Respiratory disorders in acute and chronic phases, critical care, indoor and outdoor institutional care and independent practice.
5. To develop skills as a self-directed learner, recognize continuous education needs, select and use appropriate learning resources.
6. To develop ability to teach post graduate and undergraduate Physiotherapy students
7. To demonstrate managerial, administrative skills and legislation applicable to compensation for functional disability and appropriate certification
8. Acquainting a student with concept of quality of care at the institutional as well as the community levels.

2.3 Medium of instruction:

Medium of instruction and examinations shall be in English.

2.4 Course outline

The Masters Degree in Physiotherapy is a two year program consisting of classroom teaching, self directed academic learning activities, a research project and clinical postings.

In the first year theoretical basis of fundamental Physiotherapy subjects are refreshed. In the second year, the students learn on the clinical conditions, physiotherapy assessment and advanced techniques in Cardio Respiratory disorders. During these two years, the students will be posted in Cardiology, Pulmonology and Cardiothoracic surgery and Intensive care departments. The learning program includes seminars, journal reviews, case presentations, case discussions and classroom teaching. Some of the clinical postings are provided at other reputed centers in the country in order to offer a wider spectrum of experience. The students are encouraged to attend conference and workshop to enhance their knowledge during their entire course of the study. University examinations are held at the end of second year. To fulfill their course completion, the students are required to complete and submit their dissertation on the research project.

2.5 Duration

The duration of the course shall be two years.

2.6 Syllabus

PAPER I APPLIED BASIC SCIENCES

This paper consists of 4 Modules:

I Bio Statistics and Research Methodology

II. Biomechanics and Pathomechanics

III. Ergonomics

IV. Nutrition and Exercise Physiology

MODULE I BIO STATISTICS, RESEARCH METHODOLOGY

PART I. Research Methods

1. Research fundamentals

- Research in Physiotherapy
- Theory in Physiotherapy research
- Research ethics

2. Research design

- Research problems, questions and hypotheses
- Research paradigms
- Design overview
- Research validity
- Selection and assignment of subjects

3. Experimental designs

- Group designs
- Single system design

4. Non experimental design

- Overview of non experimental research
- Qualitative research
- Epidemiology
- Outcome research
- Survey research

Part II Measurement and Analysis

1. Measurement

- Measurement theory
- Methodological research
- Measurement tools for Physiotherapy research



2. Data Analysis

- Statistical reasoning
- Statistical analysis of differences: The basics
- Statistical analysis of differences: Advanced and special techniques
- Statistical analysis of relationship: The basics
- Statistical analysis of relationship: Advanced and special techniques

Part III Locating and Evaluating the Literature

Part IV Implementing Research

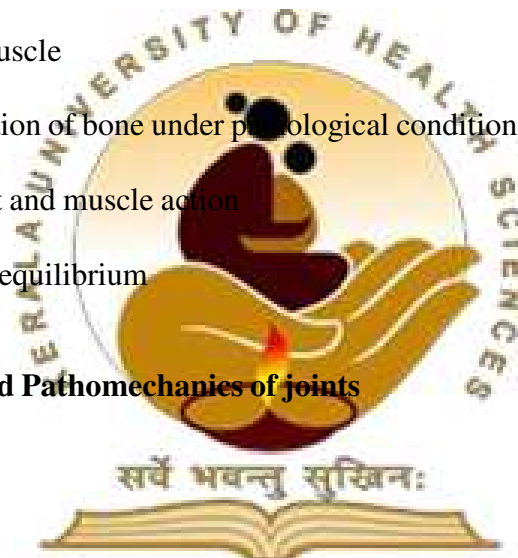
1. Implementing the projects
2. Publishing and presenting research

Module II Biomechanics and Pathomechanics

Part I Foundational concepts in Bio and Pathomechanics

Unit:

1. Basic concepts in biomechanics
2. Biomechanics of tissues and structures of the musculoskeletal system
 - Bone
 - Articular cartilage
 - Tendons and ligaments
 - Peripheral nerves
 - Skeletal muscle
3. Functional adaptation of bone under pathological conditions
4. Mechanics of joint and muscle action
5. Body balance and equilibrium



Part II Biomechanics and Pathomechanics of joints

Unit:

1. Upper extremity
2. Lower extremity
3. Vertebral column
4. Thorax and chest wall
5. Temporal mandible joint

Part III Biomechanics of integrated function

Unit:

1. Gait
2. Posture
3. Arm as a whole

Module III Ergonomics

Unit

1. History of ergonomics
2. Worker care spectrum
3. Functional assessment
4. Weighted capabilities
5. Participation level
6. Postural examination
7. Job analysis
8. Work hardening programme
9. Exit assessment
10. Pre-employment screening
 - Job analysis
 - Job task analysis
 - Job site analysis
11. Work capacity analysis
12. Role of Physiotherapy in industrial set up
13. Workers functional capacity assessment
14. Industrial therapy
15. Educational programme for prevention of injury
16. Adult education
17. Injury prevention and ergonomics
18. Work capacity analysis
19. Role of Physiotherapy in industrial set up
20. Workers functional capacity assessment



21. Industrial therapy
22. Educational programme for prevention of injury
23. Adult education
24. Injury prevention and ergonomics
25. Work capacity analysis
26. Role of Physiotherapy in industrial set up
27. Workers functional capacity assessment
28. Industrial therapy
29. Educational programme for prevention of injury
30. Adult education
31. Injury prevention and ergonomics

Module IV Nutrition and Exercise physiology

Part I Basic Exercise Physiology

Unit

1. Introduction to exercise physiology
2. Nutrition and Performance
3. Energy transfer
4. Measurement of human energy expenditure
5. Systems of energy delivery and utilization
 - Pulmonary system
 - Cardiovascular system
 - Musculoskeletal
 - Nervous System
 - Endocrine system



Part II Applied Exercise Physiology

Unit

1. Aerobic power training
2. Anaerobic power training
3. Special aids in performance and conditioning
4. Exercise at different altitudes
5. Exercise at various climatic conditions
6. Sport diving
7. Obesity and weight control
8. Exercise and aging
9. Clinical exercise physiology

PAPER II PHYSIOTHERAPEUTICS

This paper consists of 4 Modules:

- **Manual therapy**
- **Exercise therapy**
- **Electrotherapy**
- **Electrophysiology**



Module I Manual Therapy

Part I Foundational concepts in Manual therapy

Unit

1. History of manual therapy
2. Biomechanical principles in manual therapy
 - Concave-Convex rule
 - Close pack and Loose pack Positions

- Resting positions
- Joint status
- Barrier concepts
- Fryette's Laws
- Articular neurology

3. Pain

Part II Joints Mobilization Techniques

(Terminology, Principles, Indications, Contra-indications, Assessment and method of application of the following techniques)

Unit

1. Kalten born
2. Maitland
3. Mulligan
4. McKenzie
5. Cyriax
6. Butler neural mobilization



Part III Soft Tissue Techniques and Recent Advances in Manual Therapy

(Terminology, Principles, Indications, Contra indications, Assessment and method of Application of the following techniques)

Unit

1. Myofascial release techniques
2. Muscle energy techniques
3. Trigger point release
4. High velocity thrust techniques
5. Positional release techniques

Module II Exercise Therapy

Part I Foundational Concepts

Unit

1. Application of Disablement and Enablement models in therapeutic exercise
2. Principles of self management and exercise instruction
3. Prevention, health and wellness

Part II Applied Science of Exercise and Techniques

Unit

1. Range of motion
2. Stretching
3. Resisted exercise
4. Principles of aerobic exercise
5. Exercise for balance and posture
6. Aquatic exercises
7. Training with functional devices



Part III Evidenced Based Clinical Applications of Exercise and Techniques

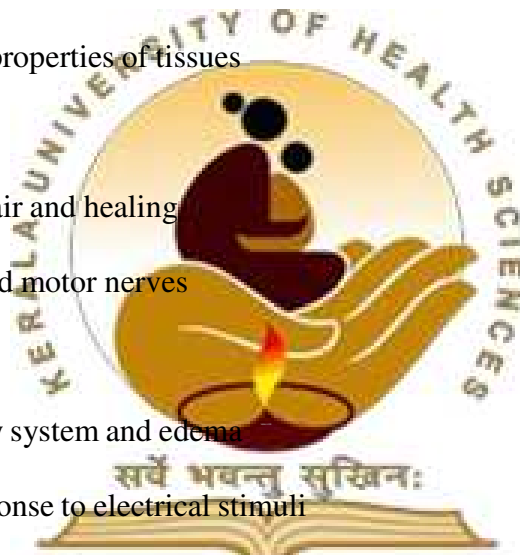
Module III Electrotherapy

Part I Foundational Concepts in Electrotherapy

Unit

1. Bioscience of therapeutic electrical currents
 - Basic physics
 - Basic principles of electricity
 - Types of current

- Classification of therapeutic electrical currents
 - Parameters of therapeutic electrical currents
2. Bioscience of therapeutic thermal modalities
- Thermal physics
 - Bio physics
 - Basic principles of thermal agents
 - Classification of thermal agents
 - Parameters of thermal agents
3. Physiology
- Electrical properties of tissues
 - Skin
 - Tissue repair and healing
 - Sensory and motor nerves
 - Pain
 - Circulatory system and edema
4. Physiological response to electrical stimuli
5. Physiological response to thermal stimuli
6. Clinical effects of electrical and thermal modalities
- Soft tissue
 - Joints
 - Neuronal activity
 - Muscle performance
 - Visceral tissues
 - Abnormal tissues (Hematomas and malignant tumors)
7. Current concepts in electrotherapy



Part II. Thermal Modalities

Unit

1. Shortwave diathermy
2. Microwave diathermy
3. Infrared radiation
4. Ultrasound
5. Cryotherapy

Part III. Photo Chemical Agents

Unit

1. Laser
2. Ultra violet radiation

Part IV. Electrical Stimulation Modalities

Unit

1. Faradic current
2. Galvanic current
3. Neuromuscular electrical stimulation
4. Transcutaneous electrical nerve stimulation
5. Interferential therapy
6. Functional electrical stimulation
7. High voltage pulsed galvanic stimulation
8. Didynamic currents
9. Russian currents
10. Micro current therapy
11. Low intensity alternating current
12. Rebox
13. Ionotoporesis



Part V. Mechanical Modalities

Unit

1. Traction
2. Compression
3. Hydrotherapy

Part VI. Recent Advances in Electrotherapy

Unit

1. Shock wave therapy
2. Combination therapy
3. Long wave diathermy
4. Magneto therapy

Part VII. Evidence Based Clinical Application of Electrotherapeutics

Unit

1. Pain
2. Muscle strengthening and prevention of atrophy
3. Muscle spasm
4. Central nervous system lesions
5. Peripheral nervous system lesions
6. Edema and peripheral vascular dysfunctions
7. Wound healing
8. Pelvic floor dysfunctions
9. Obesity



Module IV Electrophysiology

Part I Foundational Concept

Unit

1. Historical perspective
2. Terminology
 - Electro diagnosis
 - Electro neuromyography (ENMG)
3. Effectiveness of electrical stimuli

Part II Basic Physiology of Nerve and Muscles

Unit

1. Membrane physiology
2. Muscle physiology
3. Nerve physiology
4. Physiological variables affecting electrophysiological tests

Part III Instrumentation

Unit

1. Components of electro diagnostic apparatus
2. Technical variables

Part IV Principles of Electro Physiological Techniques

Unit

1. **Traditional methods**
 - Faradic galvanic test
 - Strength duration test
 - Chronaxie test
 - Rheobase test



- Reaction of regeneration test
- Nerve excitability test

2. Recent Methods

- Principles of NCS and EMG

Part V Evidence Based Application of Electrophysiological studies in Physiotherapy

Unit

1. Kinesiological electromyography
2. EMG biofeedback
3. Application of traditional and contemporary techniques in Physiotherapy
4. Common parameters used in Physiotherapy research

Paper III CARDIO RESPIRATORY PHYSIC THERAPY

This paper consists of 3 Modules:

- **Cardio Respiratory Anatomy, Physiology and Clinical conditions**
- **Physical and functional assessment**
- **Physiotherapy interventions**

Module I Cardio Respiratory Anatomy, Physiology and Clinical conditions

Part I Fundamentals in Cardio-Respiratory Physiotherapy

Unit

1. Anatomy, physiology, biomechanics, pathomechanics & applied anatomy related to Cardiovascular & Pulmonary System
2. Mechanics of Breathing using Lung Compliance
3. Neural Control of Airway Resistance, Control of Breathing
4. Cough Reflex
5. Maintenance of Blood Pressure
6. Development of the Cardio Vascular, Pulmonary systems and deviations from the normal development.
7. Age related changes in Cardiovascular & Pulmonary System
8. Physiology of microcirculation and edema

9. Body positioning and various systemic changes
10. Respiratory muscle physiology, fatigue and training
11. Normal and abnormal responses of Cardiovascular & Pulmonary System during exercise
12. Breathing mechanism in normal and diseased.

Part II Clinical Conditions

Unit

1. **Respiratory Conditions:-** Epidemiology, Patho-mechanics, Clinical presentation, Relevant Diagnostic tests (PFT, Labs etc.) and Medical Management of Disorders of the Pulmonary system.

:-Obstructive lung diseases

Restrictive lung diseases - Suppurative lung diseases, Infective lung diseases, Occupational lung diseases, Disease of pleura, Chest trauma, Chest wall deformities, Lung cancers, Children with respiratory dysfunction, Diaphragmatic diseases, Sleep apnoea, Hyperventilation syndrome, Respiratory failure

2. **Cardio Vascular Conditions:** - Epidemiology, Pathomechanics, clinical presentation, relevant diagnostic test (ECG, Echo cardiography, cardiac catheterization, Radionuclide scanning, stress testing, ABG, Labs etc.) and medical management of disorders of the cardiac system.

:- Congenital heart diseases, Acquired heart diseases, Disease of the heart valve, Myocardial infarction, Hypertension, Orthostatic hypotension, Diseases of the myocardium, Infective Endocarditis, Pericardial diseases, Tumors of the heart, Disorder of cardiac rate, Rhythm and condition, Cardiac arrest, Vascular diseases, Peripheral vascular diseases, Heart diseases in pregnancy

3. Cardiopulmonary complications in Burns
4. Cardiopulmonary Medication and their effects on Activity & Performance

Module II Physical and functional Assessment

Unit

1. Introduction to Physiotherapy Assessment

- Purpose and need for Physiotherapy assessment
- Historical perspective
- Physiotherapy verses medical model of practice
- Various categories for movement dysfunction
- Preferred practice patterns in Physiotherapy.
- Musculoskeletal
- Neuromuscular
- Cardiovascular/pulmonary
- Integumentary
- Today's health care model

II. Influence of Psychological Factors on Réhabilitation

- Psychological adaptation
- Personality and coping styles
- Common defense reactions to disability
- Anxiety
- Acute stress disorder and post traumatic stress disorder
- Depression
- Substance abuse
- Agitation and violence
- Hypersexuality
- Psychosocial wellness
- Wellness in rehabilitation
- Integrating psychosocial factors into rehabilitation
- Suggestions for rehabilitative interventions



III. Influence of Values on Patient Care; Foundation for Physiotherapy assessment

- Process of assessment
- Values and valuing
- Code of ethics
- The values of patient as a factor in care
- The influence of the values on the primary goal of patient care
- Value – Laden situation in rehabilitation

IV. Examination of Functional Status and Activity Level

- A conceptual framework
- Examination of function
- Response formats
- Interpreting test results
- Selected instruments assessing physical function
- Multidimensional functional assessment instruments

V. Examination of Environment

- Purpose
- Examination strategies
- Patient – Home environment relationship: Overview of access, usability and safety
Adaptive equipment
- Assistive technology Examination of the workplace Community access Documentation
- Funding for environmental modifications Legislation

VI. Guideline for Physiotherapy Documentation

- Introduction
- Documenting the examination
- Documenting the evaluation
- Documenting the plan of care
- Application of documentation skills



VII. Disablement and Enablement Concepts for Physiotherapy Research and Practice

- Traditional model
- Consequences of disease model
- NAGI model
- International Classification of Impairments Disability and Handicap Model (ICIDH – 1)
- National Center for Medical Rehabilitation Research Model 1 &2 (NCMRR)
- Components of Health
- International Classification of Functioning, Disability and Health (ICF / ICIDH - 2)

VIII. ICF Coding

- History and development of the ICF
- The ICF and the WHO family of international classifications
- Components of the ICF
- ICF coding
- Benefits of Using ICF

IX. Evidence Based Practice

- Principles of evidence-based Physiotherapy practice
- Elements of evidence
- Appraising the evidence
- Evidence in practice

Part X Assessment of cardio respiratory conditions

1. Skills of physiotherapeutic & functional Assessment of Cardiopulmonary system.
2. Basic principles and concepts of thoracic imaging, Electrocardiogram, Pulmonary function tests, Respiratory and Cardio -Vascular stress test & Ergometer; Cardiac Catheterization & Coronary angiography, Cardiac Scans, PET Scan, Bronchoscopy.
3. EVALUATION OF PERIPHERAL VASCULAR DISORDERS
 - A) Arterial evaluation
 - B) Venous evaluation
 - C) Lymphatic evaluation
4. Fluid and electrolyte balance



Module III Physiotherapy Interventions

Part I Basic Foundations

Unit

1. History of Cardio pulmonary Physiotherapy
2. Concepts in Cardio-respiratory Physiotherapy
3. Concepts in Cardio-pulmonary Rehabilitation.

Part II Advanced Chest Physiotherapy Techniques & Rehabilitation protocols

Unit

- Body positioning techniques
- Relaxation techniques
- Breathing exercises
- Breathing re-education techniques
- Neurophysiological Facilitation of Respiration
- Advanced airway clearance techniques
- Facilitating ventilatory patterns and breathing strategies
- Evidence based practice in Cardiac Rehabilitation
- Evidence based practice in Pulmonary Rehabilitation
- Ventilator – dependent patient
- Adjuncts to Chest Physiotherapy
- Humidification
- Nebulization
- Aerosol delivery
- Mechanical ventilation (Invasive, Non Invasive)
- Airways
- Tracheostomy care
- Suction
- Manual hyper inflation
- Lung expansion therapies
- Oxygen therapy
- Cardiopulmonary resuscitation, procedures and techniques



Part III Management for Clinical and surgical Conditions

Unit

1. Cardio vascular system
 - Cardiac conditions
 - Peripheral vascular diseases
2. Respiratory system
 - Obstructive conditions
 - Restrictive conditions

- Suppurative conditions
- Infective conditions
- Occupational lung diseases
- Chest trauma
- Chest wall deformities
- Lung cancers
- Children and Neonates

3. Surgical management of the cardio-pulmonary conditions, indication, contraindications for surgery, precautions after surgery.

Also included:- Close v/s open Heart surgery, Incisions, Preoperative Assessment of Patient, Pre and post op blood gas exchange, Haemodynamic performance of CTVS Patients, Emergencies in CTVS, A-V Shunt, Heart Transplant, Left Ventricular Assistive devices, Cardiopulmonary Bypass, Maintaining and Removing Artificial Airways & Procedure on Sternum, Chest wall, diaphragm, mediastinum, Oesophagus

4. Life-style modifications

5. Cardio-pulmonary fitness training and disability evaluation

6. Cardiac transplantation

7. Lung transplantation

8. ICU management- Acute and critical care settings, Physiotherapy management in ICU, NICU and PICU

9. Cardiopulmonary Resuscitation (CPR)

10. Home program and education of family members in patient care

11. Pharmacology in respiratory and cardiovascular system and their effects on activity performance

The concept of health care counseling shall be incorporated in all relevant areas.

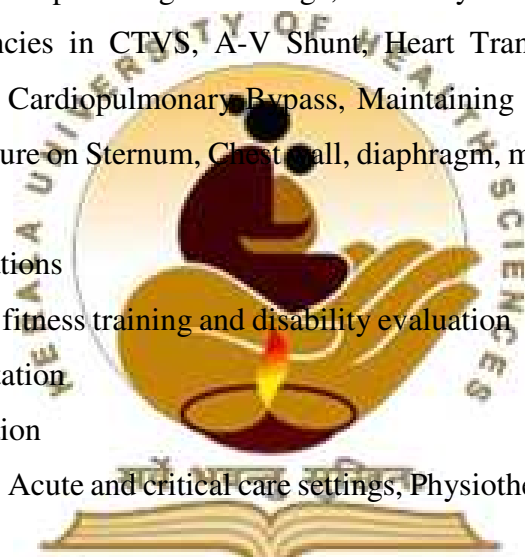
2.7 Total number of hours

Total number of hours will be 3240 hours during the two years of study.

2.8 Branches if any with definition

2.9 Teaching learning methods

Teaching learning methods will include class room lectures, practical and laboratory demonstrations, and bed side clinical demonstrations by qualified faculty and self directed learning by the students through assignments, seminar and case presentations,



journal clubs and research works under the faculty guidance.

2.10 Content of each subject in each year

As in 2.6 above

2.11 No: of hours per subject

Paper	Teaching and Learning Methods	Weekly class hours	Total hours
Paper I: Applied Basic Sciences Subjects: 1. Bio Statistics and Research Methodology 2. Biomechanics and Pathomechanics 3. Ergonomics 4. Nutrition and Exercise Physiology	Lectures	2	180
	Seminars	2	180
	Practicals and Demonstrations	4	360
	Clinical Discussions	2	180
	Clinical Case Presentations	2	180
Paper II: Physiotherapeutics Subjects: 1. Manual therapy 2. Exercise therapy 3. Electro therapy 4. Electrophysiology	Journal Club	2	180
	Class room teaching	1	90
	Library	3	270
Paper III Cardio Respiratory Physiotherapy Subjects: 1. Anatomy and Physiology 2. Clinical condition 3. Physiotherapy assessment 4. Foundational concepts and condition management 5. Advanced chest physiotherapy techniques and rehabilitation protocols	Clinical Training	15	1350
	Synopsis & Dissertation work		210
Community Camps, Field Visits, Participation in Workshops & Conferences	3		60
TOTAL HOURS		36	3240

2.12 Practical training

Practical training should be imparted under laboratory conditions for the basic science subjects with emphasis on carrying out the experiments and tests through demonstration by relevant faculty and repeated practice by the students. For physiotherapy assessment and treatment techniques these should be first demonstrated on human models and the students should practice on human models repeatedly until proficiency is gained. Later the techniques should be demonstrated on patients during bed side clinics and the students are encouraged to carry out the techniques on patients under strict and close supervision of faculty.

2.13 Records

In all subjects with practical components, meticulous records should be kept regarding the topic of the practical training, procedure, materials and methods used, results and outcomes. The records should be submitted for inspection during practical or viva examination.

2.14 Dissertation:

As per Dissertation Regulations of KUHS

2.15 Specialty training if any

2.16 Project work to be done if any

Not applicable

2.17 Any other requirements [CME, Paper Publishing etc.]

All students should attend at least two CME program each year preferably conducted in their own institution and two other conferences/workshops.

2.18 Prescribed/recommended textbooks for each subject

Bio statistics, Research methodology

- i. Rehabilitation Research: Principles and Applications by Elizabeth Domholdt (Elsevier Science Health Science Div, 2004)



Biomechanics and Pathomechanics

1. Basic biomechanics of the musculoskeletal system by Margareta Nordin and Victor H. Frankle, 2nd edition (Lea and Febiger)
2. Kinesiology of the Human Body: Under Normal and pathological condition by Arthur Steindler, 5th edition (Charles C Thomas, 1977)
3. Joint Structure & Function :A comprehensive analysis by Cynthia C Norkin, Pamela K Levangie (Jaypee Brothers, 2006)
4. Brunnstrom's Clinical Kinesiology by Laura K. Smith & Don Lehmkuh, 5th edition (F A Davis, 1996)
5. The Physiology of the Joints by Kapandji & Matthew J Kendel (Churchill Livingstone, 2008)
6. Clinical Biomechanics of the Spine by Augustus A White & Manohar M Panjabi, 2nd Edition (Lippincott Williams & Wilkins; 1990)
7. Kinesiology :The mechanics and Pathomechanics of Human Movement by Carol Oatis (Lippincott Williams & Wilkins, 2008)
8. Kinesiology: Application to pathological motion by Soderberg, 2nd Edition (Williams & Wilkins, 1997)

Ergonomics

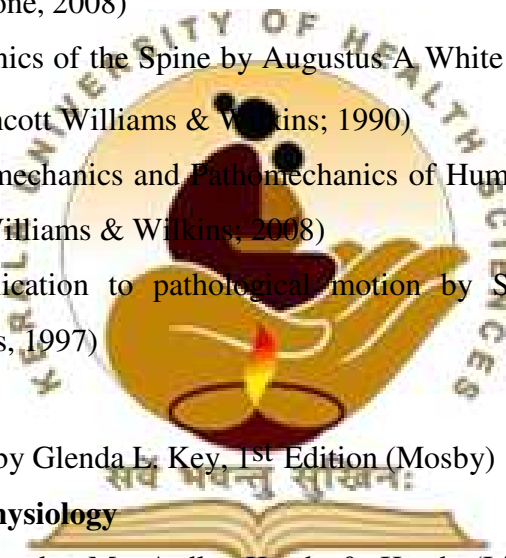
1. Industrial Therapy by Glenda L. Key, 1st Edition (Mosby)

Nutrition and Exercise physiology

1. Exercise Physiology by Mc Ardle, Katch & Katch (Lippincott Williams and Wilkins, 2000)
2. Exercise Physiology: Exercise, Performance, and Clinical Applications by Robert A. Roberts and Scott O Roberts William C Brown, 1997)
3. Clinical Exercise Testing and Prescription Theory and Applications by Scott O. Roberts, Peter Hanson (C RC Press, 1997)

Manual Therapy

1. Grieve's modern manual therapy: The vertebral column By Jeffrey Boyling and Grad Dip Man Ther (Churchill Livingston)
2. Concern manual therapy books



Exercise Therapy

1. Therapeutic Exercise: Treatment Planning for Progression by Francis E. Huber, Christly. Wells(W.B. Saunders Company, 2006)
2. Therapeutic Exercise: Foundations and Techniques by Carolyn Kisner and Lynn Allen Colby(W.B. Saunders Company, 2007)
3. Therapeutic Exercise, Moving Towards Function by Carrie M. Hall and Lori Thein Brody(Lippincott Williams & Wilkins, 2004)

Electrotherapy

1. Integrating physical agents in rehabilitation by Bernadette Hecox and John Sanko, 2nd edition(Pearson prentice hall 2006)
2. Physicals agents in rehabilitation: from research to practical by Michell H. Cameron, 2nd edition (Saunders and Elsevier, 2003)
3. Therapeutic Modalities for Allied Health Professionals by William E. Prentice and Frank Underwood (McGraw-Hill, 1998)

Electrophysiology

1. Electromyography in clinical practice by Michael J. Aminoff, 3rd edition (Churchill Livingstone)
2. Clinical neurophysiology by UK Misra and Kalita, 2nd edition (Churchill Livingstone)
3. Electro diagnosis in diseases of nerve and muscle: Principles and practice by Jun Kimura(Oxford university press)
4. The ABC of EMG: A practical introduction to Kinesiological electromyography by Peter Conrad (Noroxon Inc. USA 2005)
5. Integrating physical agents in rehabilitation by Bernadette Hecox and John Sanko, 2nd edition(Pearson prentice hall 2006)

Cardio Respiratory disorders

1. Human Physiology by Guyton
2. Physiology of Human joints by Kapandji
3. Hand book of physiology in Aging - Masoro, C.R.C Press
4. Mechanical Ventilation by Irwin R.S. Bemers

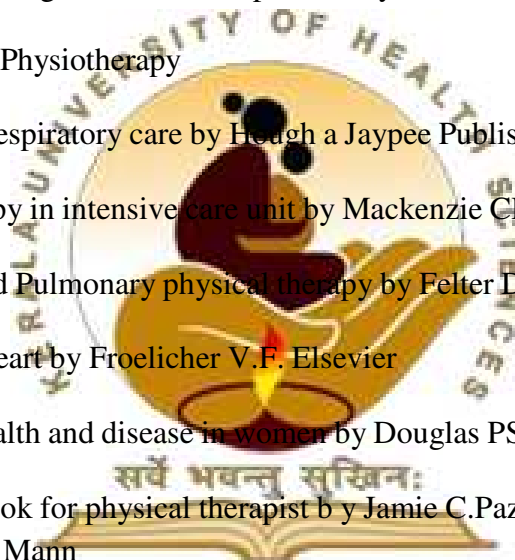
5. Mechanical Ventilation by David W. Chang
6. Baum's text book of pulmonary diseases
7. Crofton and Douglas's Respiratory diseases
8. Egan's Fundamentals of Respiratory care by Robert Wilkins
9. Harrison's Textbook of medicine
10. Braunwald's Cardiology
11. API's Text book of Medicine

Physical and functional assessment

1. American physical therapy association: Guide to physical therapy practice, 2nd edition 2001.
2. Physical rehabilitation (4 & 5th edition) by Susan B O Sullivan and Thomas J Schmitz. (Jaypee publication)
3. International Classification of Functioning, disability and health: Short version. (IT'S Publication)
4. Professionalism in physical therapy: History, Practice and Development by Laura Lee Swisher and Catherine G. Page, (Elsevier publication 2005)
5. Effective Documentation for Physical Therapy Professionals, by Eric Shamus and Debra (McGraw Hill company 2004)
6. Physical therapy Documentation: From examination to outcome by Mia Erickson, Ralph Utzman (Slack incorporated 2008)
7. Writing SOAP Notes with Patient / Client management Formats by Ginge Kettenbach, Ph. D., PT, 3rd Edition, 2004, F.A. DAVIS COMPANY. Philadelphia
8. Practical Evidence-Based Physiotherapy Rob Herbert, Gro Jamtvedt, Judy Mead, Kare Birger Hagen Elsevier Butter worth Heinemann; Oxford UK (2005)
9. Guide to Evidence-Based Physical Therapy Practice by Dianne V. Jewell, PT, PhD, Virginia Commonwealth University, Virginia
10. Hand book of neurologic rating scales by Robert M. Herndon, 2nd edition, (Demos publications 2005)
11. ECG by Schamroth
12. Interpretation of Pulmonary Function Tests: A Practical Guide by Hyatt, Robert E.; Scanlon, Paul D
13. Principles of Exercise Testing and Interpretation: Including Pathophysiology and Clinical Applications by Kalman Wasserman

Physiotherapy Interventions

1. Cardio pulmonary physical therapy by Scott Irwin
2. Cardio pulmonary physical therapy by Donna frownfelter
3. Principles of cardio pulmonary physical therapy by Asbury & Petty
4. Cardio pulmonary physical therapy by HelenHillegas, (Saunders)
5. PT for RT & cardiac problems by Weber
6. Cardio pulmonary physical therapy by Joanne Watchie
7. Physiotherapy for respiratory and cardiac problems by Pryor JA; Prasad SA, Elsevier
8. Respiratory care – A guide to clinical practice by Burton G.G. & Hodgkin
9. Brompton's Chest Physiotherapy
10. Physiotherapy in respiratory care by Hough a Jaypee Publishers
11. Chest physiotherapy in intensive care unit by Mackenzie CF Williams and Wilkins
12. Cardiovascular and Pulmonary physical therapy by Felter D.F. Mosby
13. Exercise and the heart by Froelicher V.F. Elsevier
14. Cardiovascular health and disease in women by Douglas PS. Saunders
15. Acute care handbook for physical therapist by Jamie C.Paz Michel P. West. ButterworthHeine Mann
16. Physical therapy for children by Campbell Suzann K, W.B Saunders, Philadelphia
17. Chest physiotherapy in Intensive care unit by Mackenzie, Williams & Wilkins, Baltimore
18. Cardiopulmonary symptoms in physiotherapy by Cohen M, Churchill, Livingstone, London
19. Physical rehabilitation: assessment and treatment by O'Sullivan, F.A Davis, Philadelphia
20. Clinical application of ventilatory support by Kinky Churchill, Livingstone, New York
21. Pulmonary rehabilitation: guidelines to success by Bodkins, Butterworth, Boston
22. Cardiac rehabilitation by Amundsen lord, Churchill, Livingstone, London
23. Physical therapy of the cancer patient by McGaryex Charles, Churchill, Livingstone, New York



24. Multidisciplinary approach to breathing disorder by Leon
25. Clinical Exercise testing by Jones
26. Pulmonary rehabilitation. The Obstructive and Paralytic Conditions by John
27. Coronary artery disease essentials of prevention and Rehabilitation Program by Peter
28. Pulmonary Rehabilitation by John Hodgkin (Elsevier)

2.19 Reference books

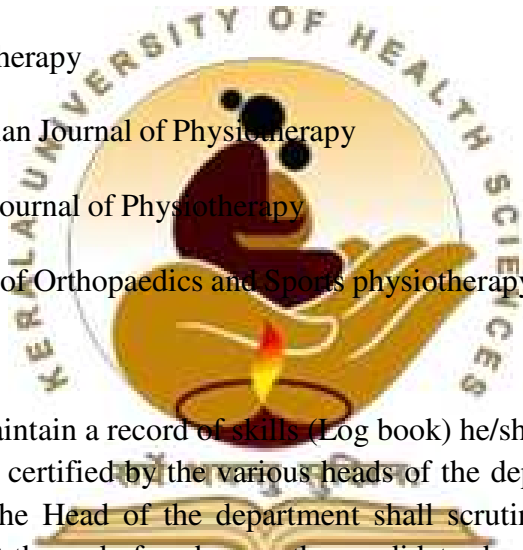
Same as 2.18

2.20 Journals

- ii. Journal of Physical Therapy
- iii. Physiotherapy
- iv. Australian Journal of Physiotherapy
- v. Indian Journal of Physiotherapy
- vi. Journal of Orthopaedics and Sports physiotherapy

2.21 Logbook

Every student shall maintain a record of skills (Log book) he/she has acquired during each year of training period certified by the various heads of the department where he/she has undergone training. The Head of the department shall scrutinize the log book once in every three months. At the end of each year, the candidate should summarize the contents and get the log book certified by the Head of the Institution.



3. EXAMINATIONS

3.1 Eligibility to appear for exams

There shall be 80% attendance in theory and practical/clinical separately to appear for the University examination. The candidate must secure the minimum marks of 50% in internal assessment in theory and practical in a particular subject in order to be eligible to appear in the university examination of the subject.

3.2 Schedule of Regular/Supplementary exams

There will be two examinations in a year (regular and supplementary), to be conducted as per notification issued by university from time to time.

Supplementary examination shall be conducted by the university for the benefit of unsuccessful candidates. The supplementary examination shall be conducted within six months from the date of publication of results of regular examination.

3.3 Scheme of examination showing maximum marks and minimum marks

SUBJECT	THEORY		THEORY INTERNAL		PRACTICAL		PRACTICAL INTERNAL		Viva		TOTAL	
	Max Marks	Min. Marks for pass	Max Marks	Min. Marks for pass	Max Marks	Min. Marks for pass	Max Marks	Min. Marks for pass	Max Marks	Min. Marks for pass	Max Marks	Min. Marks for pass
Paper I Applied Basic Sciences	100	50	50	25	***	***	***	***	***	***	150	75
Paper II Physiotherapeutics	100	50	50	25	100	50	50	25	50	25	350	175
Paper III Cardio Respiratory Physiotherapy	100	50	50	25	100	50	50	25	50	25	350	175
Dissertation	APPROVED/NOT APPROVED								100	50	100	50

3.4 Papers in each year

As in 3.2

3.5 Details of theory exams

Question paper pattern for MPT theory examination

Subjects having maximum marks = 100		
Type of question	Number of questions	Marks for each question
Structured Essays	2	20
Brief structured essay	10	6

BROAD GUIDELINES

Paper	Subjects	Distribution of marks	Total marks
Paper I Applied Basic Sciences	1 Bio Statistics and Research Methodology	30	100
	2 Biomechanics and Pathomechanics	30	
	3 Ergonomics	10	
	4 Nutrition and Exercise Physiology	30	
Paper II Physiotherapeutics	1 Manual therapy	25	100
	2 Exercise therapy	25	
	3 Electro therapy	25	
	4 Electrophysiology	25	
Paper III Cardio Respiratory Physiotherapy	1. Anatomy and Physiology	15	100
	2. Cardio Respiratory Disorders	15	
	3. Physical and functional diagnosis	30	
	4. Physiotherapy interventions	40	

Structured Essay should be explanatory and brief structured Essay should be descriptive.

3.6 Model question paper for each subject with question paper pattern

MASTER OF PHYSIOTHERAPY (MPT) DEGREE

FINAL EXAMINATION

PAPER I – APPLIED BASIC SCIENCES

Q.P. Code:

Time: Three Hours

Maximum: 100 marks

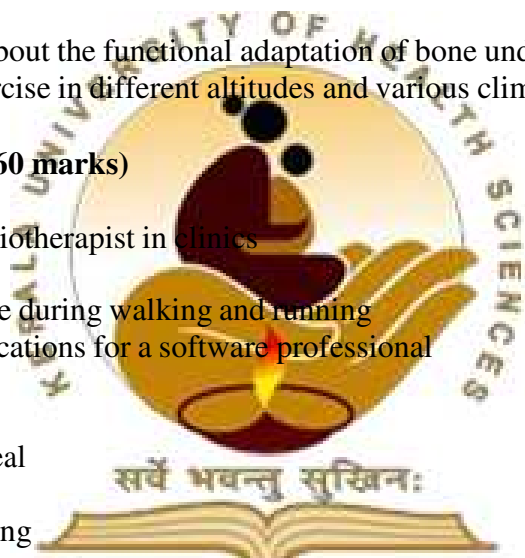
Answer ALL questions in the same order

I. Long Essay (2 x 20 = 40 marks)

1. Explain in detail about the functional adaptation of bone under pathological conditions.
2. Discuss about exercise in different altitudes and various climatic conditions.

II. Short notes: (10 x 6 = 60 marks)

1. Back care for physiotherapist in clinics
2. Job analysis
3. Energy expenditure during walking and running
4. Ergonomic modifications for a software professional
5. DOMS
6. Plyometrics
7. Pre-competition meal
8. Hallux valgus
9. Methods of sampling
10. Hypothesis testing



MASTER OF PHYSIOTHERAPY (MPT) DEGREE

FINAL EXAMINATION

PAPER II – PHYSIOTHERAPEUTICS

Q.P. Code:

Time: Three Hours

Maximum: 100 marks

Answer ALL questions in the same order

I. Long Essay (2 x 20 = 40 marks)

1. Describe the types of McKenzie's syndromes, use of repeated movements in McKenzie's method of spinal examination and explain the treatment principles for

- derangement syndrome
2. Explain in detail the neurophysiological principles and treatment principles of proprioceptive neuromuscular facilitation techniques. Describe about various proprioceptive neuromuscular facilitation techniques to improve stability

ii. Short notes (10 x 6 = 60 marks)

1. Neural mobilization
2. EMG changes in peripheral neuropathies
3. Principles of Muscle Energy Techniques
4. Concave-convex rule and its importance in manipulation
5. Russian currents
6. Iontophoresis
7. Pain assessment
8. Functional Electrical Stimulation
9. Skin fold measurement
10. Close pack and loose pack position

MASTER OF PHYSIOTHERAPY (MPT) DEGREE

FINAL EXAMINATION

PAPER III - CARDIO RESPIRATORY PHYSIOTHERAPY

Q.P. Code:

**Time: Three Hours
marks**



Maximum: 100

Answer ALL questions

i. Long Essay (2 x 20 = 40 marks)

1. Define Immobilization? Describe the various body positions and its effect on cardiorespiratory system.
2. Facilitating ventilatory patterns and breathing strategies

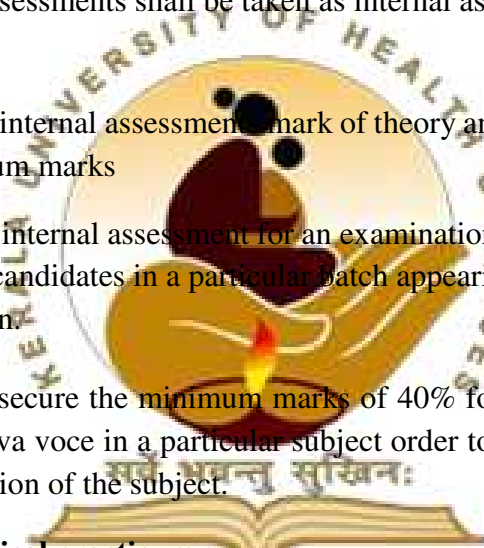
ii. Short notes (10 x 6 = 60 marks)

1. Hyperventilation syndrome
2. Pectus excavatum
3. Myocarditis
4. Exercise stress testing

5. Postural hypotension
6. Metabolic equivalent
7. Ejection fraction.
8. Advanced airway clearance technique
9. Aerobic training in coronary artery disease
10. Abnormal lung sounds

3.7 Internal assessment component

- a. There shall be a minimum of 3 periodic assessments, for theory and practical including vivaseparately, of which the final one shall be in the KUHS pattern and is mandatory.
- b. Average of the marks of the KUHS pattern examination and the best out of the remainingperiodical assessments shall be taken as internal assessment mark of the candidate
- c. The class average of internal assessment mark of theory and practical should not exceed 75% of Maximum marks
- d. The class average of internal assessment for an examination shall be calculated based on the total number of candidates in a particular batch appearing for that internal assessment examination.
- e. The candidate must secure the minimum marks of 40% for internal assessment in theory, practical and viva voce in a particular subject order to be eligible to appear in the university examination of the subject.



3.8 Details of practical/clinical practicum exams

PRACTICAL 1 - Physiotherapeutics

(Practical exam is emphasized only on Exercise, Electrotherapy and Manual Therapy)

- One long case - 60 marks
- One short case - 40 marks
- Orals - 50 marks

PRACTICAL 2 – Cardio Respiratory Physiotherapy

(Practical exam is emphasized only on Physiotherapy assessment and Interventions)

- One long case - 60 marks
- One short case - 40 marks

- Orals - 50 marks

3.9 Number of examiners (Internal & External) and their qualifications

There will be two examiners for each subject where practical/ or viva to be conducted. One examiner (INTERNAL EXAMINER) is preferably from the same institution or as decided by the KUHS and the other examiner will be from another university (EXTERNAL EXAMINER). The examiners should have at least 5 years of teaching experience after post graduation.

3.10 Details of viva:

Wherever viva is prescribed the same will be conducted by the internal and external examiners appointed for practical examinations.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring: Log Book, Seminar, Assessment etc. to be formulated by the curriculum committee of the concerned Institution



