

# **SYLLABUS**

**for Courses Affiliated to the**

**Kerala University of Health Sciences**

**THRISSUR 680596**



## **MASTER OF PHYSIOTHERAPY (MPT) IN Community Health & Geriatrics**

**Course Code:**

**(2024-2025 Academic year onwards)**

**2024**

## 2. COURSE CONTENT

### 2.1 Title of course:

**MASTER OF PHYSIOTHERAPY in Community Health & Geriatrics.**

### 2.2 Objectives of course

#### OBJECTIVES

The objective of the course is to develop a cadre of dynamic, progressive postgraduate physiotherapist, who upon completion of the course will be

1. Competent to use the physiotherapy knowledge and skills framework to work with people at both individual and population level to promote inclusive health, prevent disease, and identify and treat health conditions; with a goal to maximize their functioning, independence in activities and participation.
2. Able to effectively use their knowledge and leadership skills to integrate all resources and strategies, as described in the course content, to deliver high quality innovative services that are affordable, accessible, effective, and efficient.
3. Competent to teach and mentor undergraduate and postgraduate students; undertake independent research; strengthen existing and develop new clinical care pathways.
4. Able to efficiently advocate for maximizing access to physiotherapy service provisions within the healthcare delivery framework.

#### SCOPE OF PRACTICE

The postgraduate specialist physiotherapist in community health will be competent as autonomous clinical practitioners to promote health, prevent disease, restore health, maximize body functioning and independence in activities and participation of individuals, families, and communities. They will use their subject and domain expertise as described in the course content to deliver need and context-based care. They would be competent to work in various settings such as independent practitioners in the community, primary, urban, community and geriatric health centres, health and wellness clinics, general and targeted population clinics, hospitals, teaching institutions, research institutions, nongovernmental organizations, various central and state government health programs viz National Program for Health care for Elderly, National Leprosy Eradication Program, Government institutions, international health organizations, industrial and office settings, schools, specialized care institutions such as assisted living facilities, geriatric homes, child care institutions.

### 2.2 Medium of instruction:

Medium of instruction and examinations shall be in English.

### 2.3 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 neurological disorders. During these two years, the students

will be posted in Community Health & Geriatrics 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.

#### **2.4 Duration**

The duration of the course shall be two years.

#### **2.5 Syllabus**

### **PAPER I APPLIED BASIC SCIENCES**

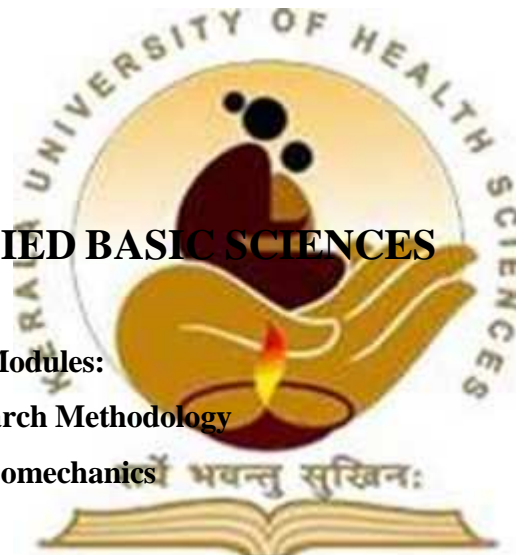
**This paper consists of 4 Modules:**

**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 – Definition, concept, purpose, approaches
- Theory in Physiotherapy research
- History of physiotherapy research
- Present scenario
- Research ethics

#### 2. Research design

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

#### 3. Writing a research proposal/critiquing a research article

- Defining a problem
- Review of literature
- Formulating a question and operational definition
- Inclusion and Exclusion criteria
- Forming groups
- Data collection & analysis
- Results, Interpretation, Conclusion, Discussion
- Informed consent
- Limitations

#### 4. Experimental designs

- Group designs
- Single system design

#### 5. 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:
  - a. The basics
  - b. Advanced and special techniques
- Statistical analysis of relationship:
  - a. The basics
  - b. 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 Patho-mechanics of joints Unit:**

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

## **Part III: Biomechanics of integrated function**

### **Unit:**

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

## **Module III: Ergonomics**

### **Units:**

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

## **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
6. Instrument-Assisted Soft Tissue Mobilization (IASTM)
7. Active Release Techniques (ART)



## **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
5. Pulsed Electromagnetic Field Therapy PEMF (PEMF)



## **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 electro myography
2. EMG biofeedback
3. Application of traditional and contemporary techniques in Physiotherapy
4. Common parameters used in Physiotherapy research

## **Paper III**

### **Part I**



# APPLIED THEORIES, PHILOSOPHIES & GLOBAL PERSPECTIVES FOR PHYSIOTHERAPY IN COMMUNITY HEALTH

## 1. Medical Anthropology & Global Health.

- a. Introduction to Medical Anthropology and Global Health
- b. Cultural Anthropology and Its Relevance to Healthcare.
- c. Introduction to Ethno medicine.
- d. Anthropology of Women's Health.
- e. Anthropology and Child Development.
- f. Anthropology of Ageing and Care.
- g. Anthropology of Disability.

## 2. Introduction to Behavioural Medicine.

- a. Biopsychosocial approach to Health and Illness.
- b. Behavioural Influence on Health.
- c. Behaviour Change Theories in Healthcare.
- d. Health Professionals' Behaviour and Healthcare Delivery
- e. Application of Behavioural Medicine in Health Promotion & Disease Prevention.
- f. Role of Behaviour Medicine in Healthcare Delivery for Chronic Neuromuscular, Musculoskeletal and Non-Communicable Diseases

## 3. Health Education.

- a. Principles of and Rationale for Health Education.
- b. Communication Skills and Strategies in Health Education.
- c. Principles and Guidelines for Development of Health Information Education and Communication Strategies

## 4. Community Health.

- a. Definition and Scope of Community Health.
- b. Consequences of Neglecting Community Health.
- c. Relevance of Community Health to Sustainable Development Goals.
- d. Principles of Community Health.
- e. Strategies for Promoting Community Health.



## 5. Health Care Delivery System.

- a. Evolution of Health Care Delivery Systems.
- b. Components of Healthcare Delivery System.
- c. Healthcare Delivery Systems in low- and High-Income Economies.
- d. Health Care Delivery System in India.
- e. Healthcare Access Disparities.
- f. Overview of Access to Physiotherapy Services.
- g. National Health Programs.
- h. Significance of Clinical care Pathways in Healthcare Access and Delivery.

## 6. Technology in Healthcare Delivery.

- a. Role of Technology in Improving Access to Healthcare.
- b. Introduction to Health Informatics.
- c. Introduction to Telehealth.
- d. Remote Monitoring and Access to Healthcare.

## 7. Disability & Health.

- a. Models of Disability.
- b. ICF Framework.
- c. Prevalence and Burden of Disability.
- d. Implications of Disability on Health and Wellbeing.
- e. Disability and Sustainable Development Goals.

## 8. Disability Laws, Policies and Advocacy.

- a. Disability Rights Movement.
- b. Legislating for Disability Rights.
- c. International Conventions and Laws on Disability.
- d. National and State Laws, Rules and Regulations for Disability.

## 9. Rehabilitation

- a. Definition, Models, & Components
- b. Rehabilitation as a Key Strategy for Health in the 21st Century.
- c. Rehabilitation in Health Systems.



- d. Strengthening Health Systems to Improve Access to Rehabilitation Services.
- e. Access to Rehabilitation in Primary Health Care.
- f. Community-Based Rehabilitation.
- g. Rehabilitation in Emergencies: Minimum Technical Standards and Recommendations for rehabilitation

#### **10. Principles & Biomechanics of Assistive Technology and Products.**

- a. Definition – Assistive Technology, Assistive Products, Priority assistive products
- b. Principles of Assistive Technology
- c. Concept of Universal Design
- d. Biomechanical considerations of mobility devices
- e. Biomechanical Principles of Prosthetics and Orthotics

#### **11. Occupational Biomechanics and Ergonomics.**

- a. Common Physical Principles in Occupational Biomechanics and Ergonomics.
- b. Biomechanical Principles of Load Analysis.
- c. Biomechanics of Human Posture.
- d. Factors influencing Load Bearing Abilities of Human Body.
- e. Biomechanics of Lifting and Material Handling.
- f. Biomechanics of Overexertion injuries.

#### **12. Gerontology**

- a. Ageing and Population Health.
- b. Population Demographics with Ageing.
- c. Ageing and Disability.
- d. Theories of Ageing.
- e. Physiological, Functional and Behavioural Changes with Ageing

#### **13. Health and gender.**

- a. Gender Influence of Health Behaviour and Outcomes.
- b. Anatomical and Physiological Changes Across the Life Span and their Implications for Health and Functioning
- c. Biomechanics during Pregnancy.
- d. Biomechanics of Pelvic Floor in ageing and specific conditions including surgical interventions.
- e. Health and the third gender.





f. Body Image and Health Behaviours.

#### **14. Oncology**

- a. Overview of Cancer and its Primary Therapies.
- b. Health Behaviours during and after a Cancer Diagnosis.
- c. Impact of Cancer Diagnosis and its Therapies on Body Functioning, Activity, and participation.
- d. Lifestyle Medicine and Cancer Survivorship.

#### **PAPER – III**

#### **ASSESSMENT FRAMEWORK FOR PHYSIOTHERAPY SERVICE PROVISIONS IN COMMUNITY HEALTH**

##### **1. International Classification systems of disease and health.**

- a. Relationship and Difference between ICD and ICF.
- b. ICF as a Universal Tool for Measuring Functioning in Society.
- c. ICF Applications: Service Provision, Policy Development, Economic Analysis, Research Use.

##### **2. Outcome Measures for Physiotherapy in Community Health.**

- a. Outcome Measures for Assessment of Body structure & Functioning.
- b. Outcome Measures for Assessment of Activity and Participation.
- c. Assessment of contextual factors and quality of life in various contexts.

##### **3. Assessment of Health Behaviour Relevant to Physiotherapy Service Provision.**

- a. Approaches to Health Behaviour Assessment.
- b. Components of Health Behaviour Assessment.
- c. Tools for Health Behaviour Assessment.

##### **4. Health Education Assessment.**

- a. Assessment for Health Literacy.
- b. Tools for Health Education Assessment.
- c. Patient Education Needs Assessment.
- d. Need Assessment for the Development of IEC Material.



## **5. Assessment of Health Systems and Pathways.**

- a. Overview of WHO Framework for Health System Performance Assessment.
- b. Clinical Pathways as a Healthcare Tool.
- c. Assessment of Clinical Care Pathways.

## **6. Community Health Assessment Relevant to Physiotherapy Service Provision.**

- a. Principles of Community Health Assessment.
- b. Community Health Assessment & Planning Models, Frameworks & Tools.
- c. Common Elements of Assessment and Planning Frameworks.
- d. Application of Community Health Assessment Strategies in Different Settings (Urban and Rural Communities, Special Population Communities, Institutions, Industries, Schools)

## **7. Physical Fitness Assessment.**

- a. Relationship between Physical Fitness and Health.
- b. Components of Health-related Fitness.
- c. Factor influencing Physical Fitness Assessment.
- d. Methods and Tools for Health-related Fitness Assessment.
- e. Fitness Assessment in Special Population including individuals with Disabilities.
- f. Fitness Assessment in Resource-limited Settings.



## **8. Disability and Rehabilitation.**

- a. Assessment of disability Across Lifespan (Childhood Disability to Disability in the Elderly)
- b. Methods of Disability Assessment.
- c. Rehabilitation Need Assessment of individuals and societies.

## **9. Assistive Technology & Products.**

- a. Assistive Technology Need Assessment Across Lifespan.
- b. Seating, assessment
- c. Wheelchair prescription and Skills Assessment.
- d. Assessment for Orthotic Prescription.
- e. Assessment for Prosthetic Prescription.
- f. Assistive Technology Need Assessment for Inclusive Education.

- g. Assistive Technology Need Assessment for Physical Activity and Sports.
- h. Assessment for environment, adaptations, and home access.

#### 10. Industrial Health and Ergonomics.

- a. Assessment of Occupational Hazards (Physical hazards/ Biological Hazards/ Chemical hazards/Mechanical hazards/ Psychological hazards)
- b. Common Ergonomic Assessment Tools.
- c. Technology-enabled Ergonomic Assessment.
- d. Evaluation of Workplace Physical Demand.
- e. Return to Work Evaluation.

#### 11. Geriatrics

- a. Definitions – Geriatrics, Geroscience
- b. History of the Ageing concept.
- c. Definition of Healthy Ageing, Healthy Ageing concepts, and measures.
- d. Trajectories of Healthy Ageing.
- e. Health promotion targeting older people.
- f. Health Behaviour in Elderly.
- g. Multisystem age-related changes and assessment - Cardiovascular system, Respiratory system, Digestive system, Endocrine system, Musculoskeletal system, Genitourinary system, Nervous System
- h. Mental Health in elderly people
- i. Assessment of Fall Risk and Frailty.
- j. WHO guidelines for physical activity in older age.
- k. Functional ability training and assessment in older people.
- l. Role of Physiotherapist in the management of chronic pain in elderly people.
- m. Cancer and Palliative care in elderly
- n. Health policies and welfare schemes in India for the elderly.
- o. Laws in India supporting elderly.
- p. International legal and policy frameworks on ageing.



- q. Integrated care for older people (ICOPE) – Role of Physiotherapists.
- r. Long-term care for older people – Role of Physiotherapists.
- s. Prevention of elder abuse and care with empathy.
- t. WHO Global Network of Age-friendly Cities and Communities.
- u. Role of Physiotherapist in creating age-friendly environments.
- v. Outcome Measures used in Older People or Geriatric Care

## 12. Health and gender.

- a. Adolescent Health.
- b. Assessment of Pelvic Floor Integrity and Function.
- c. Antenatal & Postnatal Assessment.
- d. Assessment of infant care – participatory techniques.
- e. Ageing and pelvic Health (incontinence, constipation, sexual function)

## 13. Oncology and Palliative Care.

- a. Health Behaviour Change Assessment.
- b. Assessment for Pre-habilitation.
- c. Assessment for Cancer Related Fatigue and Pain.
- d. Evaluation of Complication of Cancer Therapies.
- e. Palliative Care Need Assessment.



## 14. Accessibility Audit.

- a. Principles of Accessibility Audit.
- b. Guidelines for Accessibility Audit in Built Environment, Public Spaces & Access to Technologies.
- c. Components of Accessibility Audit.

## PAPER – IV

### PLANNING AND MANAGEMENT FRAMEWORK FOR PHYSIOTHERAPY SERVICE PROVISIONS IN COMMUNITY HEALTH

#### 1. Improving Physiotherapy Service Provisions within Healthcare Delivery Pathways.

- a. Strategies for Developing Clinical Care Pathways.
- b. Strategies for Educating Healthcare Team Members on Service Provisions and Delivery.
- c. Strategies for Communicating Evidence and Advocacy for Physiotherapy Service provisions with Stakeholders (Government, Institutions, Professional Organizations, Funding Bodies, Healthcare Providers, Patient's caregivers, and General population).
- d. Translating Research Evidence to Practice within Healthcare Delivery Pathways (National, State, Community & Institutional Care Pathways)

#### 2. Health Promotion.

- a. Components of Health Promotion Interventions
- b. Strategies for Health Promotion Interventions
- c. Implementation and Monitoring of Health Promotion Interventions in different settings (School, Workplace, Industries, Urban and Rural Communities)



#### 3. Health Education.

- a. Design and Development of IEC Resources.
- b. Planning for IEC Interventions.
- c. Implementation and Monitoring of Health Education Interventions.
- d. Strategies for Effective Implementation of Health Education Interventions.
- e. Facilitators and Barriers to Implementation of Health Education Interventions.
- f. Training of Healthcare Providers, Caregivers, and Community Workers and Volunteers in Health Education Delivery

#### 4. Behavioural and Community Health Approaches to Management of Chronic Neuromuscular, Musculoskeletal and Non-Communicable Diseases

- a. Facilitators and Barriers to Behaviour Change Intervention.
- b. Principles & Strategies for Behaviour Change Interventions.

- c. Guidelines for Behaviour Change Initiation and Adherence Enhancing Strategies.
- d. Implementation and Monitoring of Behaviour Change Intervention.
- e. Community-based Approaches towards Management and Care of Chronic Health Impairments.

#### **5. Planning and Implementation of Rehabilitation Interventions.**

- a. Sustainable Development Goals and Rehabilitation.
- b. WHO Recommendations on Rehabilitation in Health Systems.
- c. Rehabilitation in Health Systems-WHO Guide for Action.
- d. Delivery of Effective Rehabilitation Interventions Across Lifespan.
- e. Best Practices in Implementation of Rehabilitation Interventions.

#### **6. Community-Based Approach to Healthcare.**

- a. Community participations, a Fundamental Component of Primary Health Care.
- b. Strategies for Community Engagement in Healthcare Delivery.
- c. Implementing Health Promotion through Community Participation.
- d. Evidence-based Strategies for Community Mobilization and Participation.
- e. Community-Based Rehabilitation as a Strategy within Community Development for People with disabilities
- f. Understanding and Implementing WHO CBR Guidelines.
- g. Planning and Management of CBR Programs.



#### **7. Assistive Technology and Products.**

- a. Use of Assistive Technology across lifespan.
- b. Integrating Universal Design Assistive Technology Products.
- c. Adapting WHO's Eight-Step Wheelchair Service Provision for Assistive Technology Prescription.
- d. WHO Priority Assistive Products List and National List of Essential Assistive Products.
- e. Guidelines for Prescription & Training of Orthosis and Prosthesis.
- f. Guidelines for adapted seating systems.
- g. Guidelines for Wheelchair Prescription & Training.
- h. Usability and aesthetics of Assistive Technologies.

## **8. Industrial Health and Ergonomics.**

- a. Workstation Modifications to Prevent Occupational Hazards.
- b. Ergonomic Interventions as a Treatment and Preventative Tool for Work-Related Musculoskeletal Disorders
- c. Principles of Work-hardening and Conditioning Programs.
- d. Return-to-Work Health and Fitness Programs.
- e. Education and Training of Employers & Employees in Ergonomic Solutions.

## **9. Geriatrics**

- a. Implementation of Healthy Ageing Programs.
- b. Components of Geriatric Care and Rehabilitation.
- c. Developing a Multi-component Geriatric Rehabilitation.
- d. Improving Geriatric Rehabilitation Service Provisions in Healthcare Delivery.
- e. Implementing Geriatric Rehabilitation Programs across Settings (In-patient, out-patient, specialized institutions, communities)

## **10. Gender and Health.**

- a. Health Promotion in Adolescents.
- b. Screening and Education Programs for lifestyle diseases.
- c. Pelvic Floor Dysfunction and Management Across Lifespan.
- d. Exercise Programs for Improvement of ante natal, Post-Natal Health and Fitness.
- e. Management of urinary & bowel incontinence and other dysfunctions.
- f. Exercise Interventions for Health and Fitness specific to gender concerns (men, women, and third gender)

## **11. Oncology and Palliative care.**

- a. Evidence Summary of Benefits of Physiotherapy Interventions in Cancer care.
- b. Integrating Physical Activity and Exercise as an Intervention Strategy across the Spectrum of cancer Care
- c. Implementing Evidence-based Physiotherapy Interventions in Cancer Rehabilitation.
- d. Physiotherapy Service Provisions in Palliative Care (Health Education, Improving Self efficacy, Pain management, Prescription of assistive technologies, Maintenance of ADL and Functional Independence, Training of Caregivers)

#### **14. Accessibility Audit.**

- a. Principles of Accessibility Audit.
- b. Guidelines for Accessibility Audit in Built Environment, Public Spaces & Access to Technologies.
- c. Components of Accessibility Audit.

#### **PAPER – IV**

### **PLANNING AND MANAGEMENT FRAMEWORK FOR PHYSIOTHERAPY SERVICE PROVISIONS IN COMMUNITY HEALTH**

#### **1. Improving Physiotherapy Service Provisions within Healthcare Delivery Pathways.**

- a. Strategies for Developing Clinical Care Pathways.
- b. Strategies for Educating Healthcare Team Members on Service Provisions and Delivery.
- c. Strategies for Communicating Evidence and Advocacy for Physiotherapy Service provisions with Stakeholders (Government, Institutions, Professional Organizations, Funding Bodies, Healthcare Providers, Patient's caregivers, and General population).
- d. Translating Research Evidence to Practice within Healthcare Delivery Pathways (National, State, Community & Institutional Care Pathways)

#### **2. Health Promotion.**

- a. Components of Health Promotion Interventions.
- b. Strategies for Health Promotion Interventions.
- c. Implementation and Monitoring of Health Promotion Interventions in different settings (School, Workplace, Industries, Urban and Rural Communities)

#### **3. Health Education.**

- a. Design and Development of IEC Resources.
- b. Planning for IEC Interventions.
- c. Implementation and Monitoring of Health Education Interventions.
- d. Strategies for Effective Implementation of Health Education Interventions.
- e. Facilitators and Barriers to Implementation of Health Education Interventions.
- f. Training of Healthcare Providers, Caregivers, and Community Workers and Volunteers in Health.





#### **4. Behavioural and Community Health Approaches to Management of Chronic Neuromuscular, Musculoskeletal and Non-Communicable Diseases**

- a. Facilitators and Barriers to Behaviour Change Intervention.
- b. Principles & Strategies for Behaviour Change Interventions.
- c. Guidelines for Behaviour Change Initiation and Adherence Enhancing Strategies.
- d. Implementation and Monitoring of Behaviour Change Intervention.
- e. Community-based Approaches towards Management and Care of Chronic Health Impairments.

#### **5. Planning and Implementation of Rehabilitation Interventions.**

- a. Sustainable Development Goals and Rehabilitation.
- b. WHO Recommendations on Rehabilitation in Health Systems.
- c. Rehabilitation in Health Systems-WHO Guide for Action.
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#### **6. Community-Based Approach to Healthcare.**

- a. Community participations, a Fundamental Component of Primary Health Care.
- b. Strategies for Community Engagement in Healthcare Delivery.
- c. Implementing Health Promotion through Community Participation.
- d. Evidence-based Strategies for Community Mobilization and Participation.
- e. Community-Based Rehabilitation as a Strategy within Community Development for People with disabilities
- f. Understanding and Implementing WHO CBR Guidelines.
- g. Planning and Management of CBR Programs.



#### **7. Assistive Technology and Products.**

- a. Use of Assistive Technology across lifespan.
- b. Integrating Universal Design Assistive Technology Products.
- c. Adapting WHO's Eight-Step Wheelchair Service Provision for Assistive Technology Prescription.
- d. WHO Priority Assistive Products List and National List of Essential Assistive Products.
- e. Guidelines for Prescription & Training of Orthosis and Prosthesis.
- f. Guidelines for adapted seating systems.
- g. Guidelines for Wheelchair Prescription & Training.

h. Usability and aesthetics of Assistive Technologies.

## **8. Industrial Health and Ergonomics.**

a. Workstation Modifications to Prevent Occupational Hazards.

b. Ergonomic Interventions as a Treatment and Preventative Tool for Work-Related Musculoskeletal Disorders

c. Principles of Work-hardening and Conditioning Programs.

d. Return-to-Work Health and Fitness Programs.

e. Education and Training of Employers & Employees in Ergonomic Solutions.

## **9. Geriatrics**

a. Implementation of Healthy Ageing Programs.

b. Components of Geriatric Care and Rehabilitation.

c. Developing a Multi-component Geriatric Rehabilitation.

d. Improving Geriatric Rehabilitation Service Provisions in Healthcare Delivery.

e. Implementing Geriatric Rehabilitation Programs across Settings (In-patient, out-patient, specialized institutions, communities)

## **10. Gender and Health.**

a. Health Promotion in Adolescents.

b. Screening and Education Programs for lifestyle diseases.

c. Pelvic Floor Dysfunction and Management Across Lifespan.

d. Exercise Programs for Improvement of ante natal, Post-Natal Health and Fitness.

e. Management of urinary & bowel incontinence and other dysfunctions.

f. Exercise Interventions for Health and Fitness specific to gender concerns (men, women, and third gender)



## 11. Oncology and Palliative care.

- Evidence Summary of Benefits of Physiotherapy Interventions in Cancer care.
- Integrating Physical Activity and Exercise as an Intervention Strategy across the Spectrum of cancer Care
- Implementing Evidence-based Physiotherapy Interventions in Cancer Rehabilitation.
- Physiotherapy Service Provisions in Palliative Care (Health Education, Improving Self efficacy, Pain management, Prescription of assistive technologies, Maintenance of ADL and Functional Independence, Training of Caregivers)

## Content of each subject in each year

As in 2.6 above

## 2.8 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
Paper II: Physiotherapeutics Subjects: 1. Manual therapy 2. Exercise therapy 3. Electro therapy 4. Electrophysiology	Practicals and Demonstrations	4	360
	Clinical Discussions	2	180
Paper III Physiotherapy in Community Health Part I Applied Theories, Philosophies & Global Perspectives for Physiotherapy in Community Health Part II Assessment Framework for Physiotherapy Service Provisions in Community Health Part III Planning And Management Framework for Physiotherapy Service Provisions in Community Health	Clinical Case Presentations	2	180
	Journal Club	2	180
	Class room teaching	1	90
	Library	3	270
	Clinical Training	15	1350
Synopsis & Dissertation work		3	210
Community Camps, Field Visits, Participation in Workshops & Conferences			60
<b>TOTAL HOURS</b>		<b>36</b>	<b>3240</b>

## 2.9 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 supervision of faculty.

## 2.10 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.

## 2.11 Dissertation:

As per Dissertation Regulations of KUHS

## 2.12 Specialty training if any

## 2.13 Project work to be done if any

Not applicable

## 2.14 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.

## 2.15 Prescribed/recommended textbooks for each subject Bio statistics, Research methodology

1. 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, 2<sup>nd</sup> edition ( Lea and Febiger)
2. Kinesiology of the Human Body: Under Normal and pathological condition by Arthur Steindler, 5<sup>th</sup> 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, 2<sup>nd</sup> 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, 1<sup>st</sup> 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**

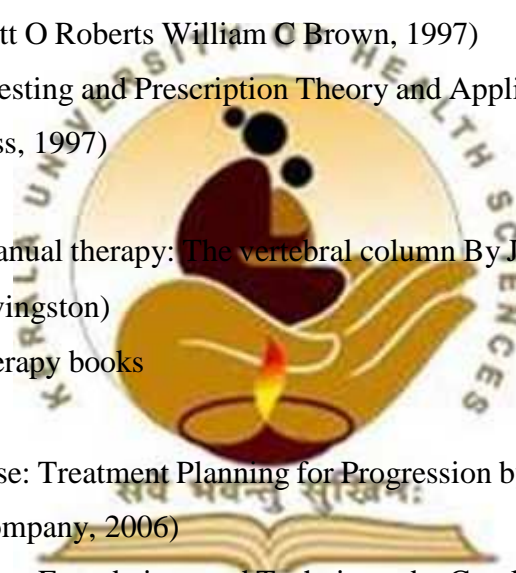
1. Therapeutic Exercise: Treatment Planning for Progression by Francis E. Huber, Christly. Wells (W.B. Saunders Company, 2006)
2. Therapeutic Exercise: Foundations and Techniques by Carolyn Kisner and Lynn Allen Colby (W.B. Saunders Company, 2007)
3. Therapeutic Exercise, Moving Towards Function by Carrie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

### **Electrotherapy**

1. Integrating physical agents in rehabilitation by Bernadette Hecox and John Sanko, 2<sup>nd</sup> edition (Pearson prentice hall 2006)
2. Physicals agents in rehabilitation: from research to practical by Michell H. Cameron, 2<sup>nd</sup> 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, 2<sup>nd</sup> 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, 2<sup>nd</sup> edition (Pearson prentice hall 2006)

### **Physical and functional assessment**

1. American physical therapy association: Guide to physical therapy practice, 2nd edition 2001.
2. Physical rehabilitation (4& 5<sup>th</sup> 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, 3<sup>rd</sup> 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. Bickerstaff's neurological examination in clinical practice by John Spillane, 6th edition (Blackwell science limited 1996)
12. Physical rehabilitation laboratory manual: Focus on functional training by Susan B O Sullivan and Thomas J Schmitz. (F.A. Davis Company)
13. The development of the infant young child: Normal and Abnormal by R.S. Illingworth, 9th edition (Churchill Livingstone 1996)

14. Functional Movement Reeducation – A contemporary model for stroke rehabilitation by Susan Ryerson and Kathryn Levit (Churchill Livingstone and Elsevier, 1997)

**Physiotherapy Interventions**

1. Robert Pool, Wenzel Geissler. Medical Anthropology (Understanding Public Health). 2006 OPEN UNIVERSITY PRESS. ISBN13: 9780335218509
2. Mechanics JI, Kushner RF, editors. Creating a Lifestyle Medicine Center: From Concept to Clinical Practice. Springer Nature; 2020 Sep 4. ISBN: 978-3-030-48087-5
3. Park's Textbook of Preventive and Social Medicine, 25th Edition 2019. Publisher: Banksides Bhanot Publishers Year: 2019. ISBN: 9789382219156
4. COOK, A. M., & POLGAR, J. M. (2015). Assistive Technologies: Principles and Practice. 4th ed. Missouri. ISBN: 978-0-323-09631-7
5. Bella J. May, Margery A. Lockard. 2011. Prosthetics & orthotics in clinical practice: A Case Study Approach, F. A. Davis Company. ISBN-13: 978-0-8036-2257-9
6. Shrawan Kumar. 2007 Biomechanics in Ergonomics 2nd Edition, Taylor & Francis. e-book ISBN: 9780429125133
7. Katrin Kroemer Elbert Henrike Kroemer Anne D. Kroemer Hoffman 2018. Ergonomics: How to Design for Ease and Efficiency. 3rd Edition. Academic Press. ISBN: 9780128132968
8. Susan B. O'Sullivan, Thomas J. Schmitz, George D. Fulk. 2014. Physical Rehabilitation, 6th edition. F.A. Davis Co. ISBN 9780803625792
9. Bharati Vijay Bellare, Pavithra Rajan, Unnati Nikhil Pandit. 2018. Textbook of Preventive Practice and Community Physiotherapy. Vol 1 & 2. ISBN: 9789352703258 & ISBN: 9789352704033
10. Dale Avers, Rita Wong. Guccione's Geriatric Physical Therapy. 4th Edition 2019. Mosby. ISBN: 9780323609128
11. Jill Mantle Jeanette Haslam Sue Barton. Physiotherapy in Obstetrics and Gynaecology, 2nd Edition. 2004. Butterworth-Heinemann ISBN: 9780750622653
12. Giammatteo, Sharon; Giammatteo, Thomas. Functional Exercise Program for Women's and Men's Health Issues (International College of Integrative Manual Therapy Wellness). 2001. North Atlantic Books ISBN 13: 9781556433665
13. American College of Sports Medicine. ACSM's exercise testing and prescription. Lippincott, Williams & Wilkins; 2017. ISBN/ISSN: 9781496339065
14. Mary M. Yoke and Carol Armbruster. Methods of Group Exercise Instruction. 2019. Human Kinetics, Inc. ISBN: 9781492571766
17. Dean E, Al-Obaidi S, De Andrade AD, et al. The First Physical Therapy Summit on Global Health: implications and recommendations for the 21st century. Physiotherapy Theory Pract. 2011;27(8):531-547.
18. Dean E, Skinner M, Myezwa H, et al. Health Competency Standards in Physical Therapist Practice. Phys Ther. 2019;99(9):1242-1254.
19. Johanna Fritz, Lars Wallin, Anne Söderlund, Lena Almqvist & Maria Sandborgh (2020) Implementation of a behavioural medicine approach in physiotherapy: impact and sustainability, Disability and Rehabilitation, 42:24, 3467-3474

## 2.8 Reference books

Same as 2.18

## 2.9 Journals

NCAHCP accepted journals i.e. those included in:

- i. Medline
- ii. PubMed Central
- iii. Embase
- iv. Scopus
- v. Science Citation Index
- vi. Science Citation Index Expanded
- vii. Directory of Open Access Journals (DOAJ)

Scopus Indexed Journals in Physiotherapy

1. ACSM's Health and Fitness Journal.
2. Acute Pain
3. Advances in Medical Sciences
4. American Journal of Physical Therapy and Rehabilitation
5. Archives of Osteoporosis
6. Biology of Sport
7. Canadian Journal of Respiratory Therapy
8. Clinical Journal of Sports Medicine
9. Clinical Rehabilitation
10. European Journal of Pain Supplements
11. European Journal of Sport Science
12. European Review of Aging and Physical Activity.
13. Exercise and Sport Sciences Reviews
14. Family and Community Health
15. Foot and Ankle Clinics
16. Foot and Ankle International
17. International Journal of Adolescence and Youth
18. International Journal of Diabetes in Developing Countries
19. International Journal of Physiotherapy and Rehabilitation
20. Journal of Exercise Science and Fitness
21. Journal of Men's Health.
22. Journal of Musculoskeletal Research





## 2.10 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

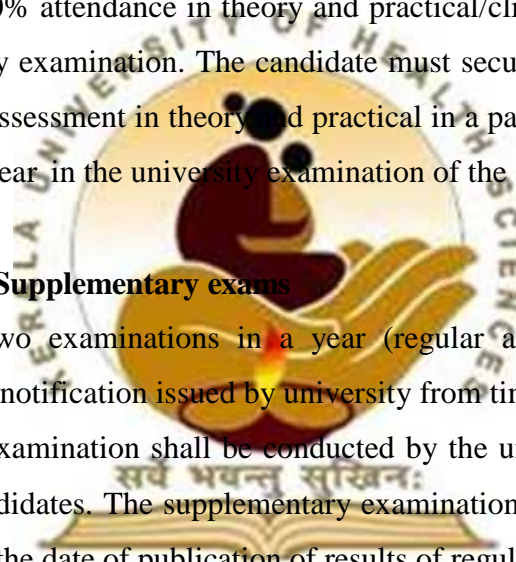
### 3.1 Eligibility to appear for exams

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		VIVAS		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 Physiotherapy in Community Health & Geriatrics	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	1	Bio Statistics and Research Methodology	30	

Applied Basic Sciences	2	Biomechanics and Pathomechanics	30	100
	3	Ergonomics	10	
	4	Nutrition and Exercise Physiology	30	
Paper II Physiotherapeutic s	1	Manual therapy	25	100
	2	Exercise therapy	25	
	3	Electro therapy	25	
	4	Electrophysiology	25	
Paper III(Speciality) Physiotherapy assessment	1.	Part I APPLIED THEORIES, PHILOSOPHIES & GLOBAL PERSPECTIVES FOR PHYSIOTHERAPY IN COMMUNITY HEALTH	15	100
	2.	Part II ASSESSMENT FRAMEWORK FOR PHYSIOTHERAPY SERVICE PROVISIONS IN COMMUNITY HEALTH	15	
	3.	Part III PLANNING AND MANAGEMENT FRAMEWORK FOR PHYSIOTHERAPY SERVICE PROVISIONS IN COMMUNITY HEALTH	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**  
**PHYSIOTHERAPY in Community Health**

**Q.P. Code:**

**Time: Three Hours**

**Maximum: 100 marks**

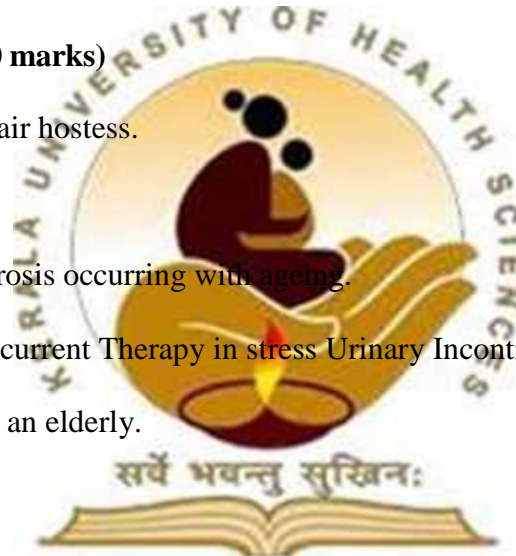
**Answer ALL questions**

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

1. A 29-year-old male works as a public motivational speaker. He experienced a L2 level incomplete spinal cord injury and is presently using wheelchair. Explain the ergonomic assessment and design considerations needed for a wheelchair that can enable him to drive a car independently. (15+5 = 20 marks)
2. In an assembly line at a packaging industry, four workers are working on rotation. Explain the functional capacity evaluation considering repetitive upper bodywork and long standing job. Describe the strategies that can prevent work-related disorders in the workers. (10+10 = 20 marks)

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

- 1) Ergonomic advice to air hostess.
- 2) Early Bird Classes.
- 3) Prevention of osteoporosis occurring with ageing.
- 4) Role of Interferential current Therapy in stress Urinary Incontinence.
- 5) Policies that facilitate an elderly.
- 6) Asbestosis.
- 7) Hazards of sedentary lifestyle.
- 8) Guidelines for women exercising during Pregnancy.
- 9) Job stress, it's causes, prevention and management.
- 10) Principles of Geriatric Rehabilitation.



### 3.7 Internal assessment component

- a. There shall be a minimum of 3 periodic assessments, for theory and practical including viva separately, 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 remaining periodical assessments shall be taken as internal assessment mark of the candidate
- c. The class average of internal assessments 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 and Electrotherapy)

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

#### **PRACTICAL 2 – Physiotherapy in Community Health & Geriatrics**

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

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

