

**Maharashtra University of Health Sciences,  
Nashik**



**Ordinance & Regulations relating to the  
Degree Course in  
Master of Physiotherapy (M.P.Th.)  
Revised Syllabus  
(Applicable from Academic Year 2012-13)**

## **Aim**

The Master of Physiotherapy (specialty) Programme is directed towards rendering training in Specialty Clinical fields to enhance professional competence in order to fulfill requirement for Physiotherapy Education and Practice.

## **Specialties offered**

1. Musculoskeletal Physiotherapy
2. Neurophysiotherapy
3. Cardiovascular and Respiratory Physiotherapy
4. Community Physiotherapy

## **Duration:**

Master of Physiotherapy (specialty) shall be a full time course with duration of **three** academic years.

## **Eligibility:**

Every candidate for admission to the course for the degree of Master of Physiotherapy (specialty) should have the Bachelor degree in Physiotherapy of the University or a degree of another University recognized as equivalent thereto.

## **Eligibility for appearing for the Exam:**

Every candidate presenting himself/herself for the examination for the first time shall submit, at least six months prior to the university examination, the four written copies of a dissertation not less than 2500 words consisting of the result of his/her own study carried out under the guidance of a recognized post graduate teacher together with review of recent advances pertinent to that theme. The acceptance of the dissertation by the examiners shall be a condition precedent to the admission of the candidate for the written & clinical (practical) examination. Dissertation should be based on the specialty subject. A candidate who has submitted his/her dissertation once will not be required to submit a fresh dissertation if he/she re-appears for the examination in the same branch on a subsequent occasion, provided that the examiners have accepted the dissertation.

The Examination for degree of Master of Physiotherapy (specialty) shall be held at the end of three academic years.

The Degree of Masters of Physiotherapy (specialty) shall not be conferred upon a candidate unless he/she has passed in the written, clinical (including viva voice) and the dissertation prescribed for the examination in accordance with the provision.

## **Goal of the M.P.Th (Specialty) Programme:**

The goal of training of post- graduate candidate in the respective specialty is to enable him / her to function as a consultant in the respective physiotherapy specialty. This requires a thorough knowledge of the fundamental and recent advances. He/she should be able to make logical / clinical

decisions regarding patient management & adopt interventions of choice independently. During this period, he/she will be expected to acquire skills in teaching technology & gain experience in research methodology. He/she should practice Physiotherapy in respective Specialty, maintaining the highest regards for ethical aspects.

The programme shall focus on clinical reasoning, problem solving and measurement of treatment outcome, emphasizing on the recent diagnostic & therapeutic trends in the concerned specialty.

On successful completion of M.P.Th. programme, the Physiotherapist professional will be able to take up teaching assignments independently for undergraduate teaching programme. He / She will be able to prepare project proposal with selected research design and interpret the evaluated outcome measures (using sound data processing techniques and statistical methods). She will be able to practice in his / her specialty area with advanced knowledge and skills.

### **Objectives of the Programme: -**

At the end of the course, the candidate shall be able to:

- Acquire in-depth knowledge of structure and function of human body related to the respective branch of specialty.
- Acquire the in-depth knowledge of movement dysfunction of human body, cause thereof, & of principles underlying the use of physiotherapeutic interventions, for restoring movement dysfunction towards normalcy.
- Demonstrate ability to critically appraise recent physiotherapeutic and related literature from journals & adopt diagnostic & therapeutic procedures based on it.
- Demonstrate skill in Physical & Functional diagnosis pertaining to patient under care.
- Demonstrate ability to make clinical decision (based on evaluation) regarding Physiotherapy strategy techniques and select appropriate outcome measures based on the comprehensive knowledge of specialty.
- Demonstrate an expertise in evidence-based skill in the management disorders including movement dysfunction in concerned specialty.
- Demonstrate an expertise in health promotion, early identification and intervention for quality restoration of function.
- Planning and implementation of treatment programme adequately and appropriately for all clinical conditions common as well as rare related to respective specialty in acute and chronic stage, in intensive care, indoor, outdoor and institutional care, independent practice, on fields of sports and community and during disaster situations.
- Demonstrate proficiency in creating awareness using newer technology, at various levels in community for healthcare & professional awareness.
- Demonstrate proficiency in planning and executing Physiotherapy services.
- Demonstrate leadership, managerial, administrative & communication skills.
- Demonstrate the knowledge of legislation applicable to compensation for functional disability, welfare schemes & rights of the disabled, laws related to industrial workers & disabled & appropriate certification.
- Demonstrate proficiency in classroom and clinical teaching using newer and appropriate technology.
- Demonstrate proficiency in conducting a professional scientific research, documentations & presentations at various levels.

## **M.P.Th. (Musculoskeletal Physiotherapy)**

The programme shall focus on application of following advances in Physiotherapy theory and practice

### **PAPER I :- Applied Physiotherapeutic – (Part I)**

- 1) Principles of exercise physiology in health and disease
- 2) Basis and Biomechanics of posture and movement patterns and Gait analysis
- 3) Biomechanical, Neuro-anatomical and Neuro-physiological basis of Therapeutic Exercises.
- 4) Fitness and Health Promotion
  - Definition of Health, Fitness and Quality of Life
  - Nutrition and fitness in normal of various ages, women, children, elderly and sports
  - Application of Diet and fitness in case of PWD (Person with disability) due to musculoskeletal disease
  - Application of principles of exercise physiology in management of movement dysfunction in illness or disease in special populations e.g. the central neural vs. peripheral limitations to exercise or occupation-related performance in individuals with disease and dysfunction.
- 5) Research Methodology and Biostatistics
  - Basic concept of research
    - Definition and scope – principles of measurement
    - Research design – reliability
    - Research problems – validity
    - Sampling techniques
    - Data collection
  - Types of studies
    - Case Control – prospective – survey – cross-sectional – retrospective – single case design – cohort – longitudinal – descriptive research – correlational – clinical – experimental design – sequential clinical design
    - Hypothesis testing
  - Statistics
    - Types of data
    - Measures of average, median, frequency and dispersion
    - Correlation and regression
    - Test of significance
    - Parametric and non-parametric test
    - Gaussian Curve
    - Standard deviation
    - Data management
  - Scientific Communication
    - Writing a research proposal, reporting the results and evaluation
    - Introduction to computer-data communication, search engines, websites, MeSH
    - literature search
    - Evaluating evidence
    - Critical appraisal of article, systematic reviews and meta-analysis

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**PAPER II:- Applied Physiotherapeutics- (Part II)**

- 1) Principles and rationale of Neuro-therapeutic skills of management, and neuro-physiological approaches
- 2) Electrodiagnosis and Electrophysiological investigation
- 3) Growth, Development and Aging of the musculoskeletal system
- 4) Scales for evaluation of Quality of life and musculoskeletal disability.
- 5) Recent Functional Diagnostic Procedures & various Outcome Measures
- 6) Education – Formal and non-formal – Philosophy of health education, curricular planning. Teaching technology – teaching learning methods, interactive learning, methods to facilitate learning, use of audio-visual aids, clinical teaching, methods of assessment of student competencies
- 7) Ethics in Physiotherapy practice and research, code of conduct for safe disciplined practice – legal aspect, Rights and responsibility of physiotherapist and client, PWD Act Rules and regulations governing physiotherapy practice- National & International.
- 8) Administration -
  - Physiotherapy Management in Hospital, community & Industry.
  - Principles of management, planning, organization, budget, policy procedures and quality assurance.
  - Communication skills, leadership quality & teamwork
  - Importance of documentation, types of documentation systems, documentation of professional assessment including International Classification of Functioning Disability and Health (ICF) format.

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### **PAPER III: Advances in Musculoskeletal Physiotherapy – (Part I)**

(Musculo-skeletal Dysfunctions of the Upper Quadrant)

(Upper Quadrant includes occiput, cervical spine, thoracic spine, shoulder girdle and upper extremities)

1. Anatomical, Physiological and Biomechanical basis for assessment of movement dysfunctions of the upper quadrant
2. Pathophysiological and Pathomechanical basis for management of movement dysfunctions of the upper quadrant
3. Clinical decision making skills in evaluation & management of all pediatric, adult and geriatric dysfunctions of the upper quadrant
4. Advances in functional diagnostic procedures & various outcome measures relevant to musculo-skeletal dysfunctions of the upper quadrant
5. Pathobiological mechanisms of pain; Recent advances in pain evaluation and management
6. Advances in the field of Manual Therapy
7. Principles of musculo-skeletal health and performance related fitness and Physiotherapeutic management of musculo-skeletal injuries & dysfunctions in various sports
8. Principles of assessment of industrial fitness and assessment & management of musculoskeletal dysfunctions related to various industries.
9. Ergonomics in Musculo-skeletal dysfunction of the upper quadrant
10. Assistive technology used for stability and mobility to enhance function.
11. Evidence based practice to formulate effective assessment and treatment program
12. Evaluation of disability
13. Legislation and social care.
14. Assessment, clinical reasoning and management of Integumentary impairments due to musculoskeletal dysfunction
15. Pharmacotherapeutics in musculoskeletal conditions and its relevance in physiotherapy
16. Clinical decisions for lower quadrant function in presence of upper quadrant dysfunction-

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**PAPER IV: Advances in Musculoskeletal Physiotherapy –(Part II)**

**(Musculo-skeletal Dysfunctions of the Lower Quadrant)**

**(Lower Quadrant includes lumbar spine, sacrum, pelvis and lower extremities)**

1. Anatomical, Physiological and biomechanical basis for assessment of movement dysfunctions of the lower quadrant
2. Pathophysiological and Pathomechanical basis for management of movement dysfunctions of the lower quadrant
3. Clinical decision making skills in evaluation & management of all pediatric, adult and geriatric dysfunctions of of the lower quadrant
4. Advances in functional diagnostic procedures & various outcome measures relevant to musculo-skeletal dysfunctions of the lower quadrant
5. Pathobiological mechanisms of pain; Recent advances in pain evaluation and management
6. Advances in the field of Manual Therapy
7. Principles of musculo-skeletal health and performance related fitness and Physiotherapeutic management of musculo-skeletal injuries & dysfunctions in various sports
8. Principles of assessment of industrial fitness and assessment & management of musculoskeletal dysfunctions related to various industries.
9. Ergonomics in Musculo-skeletal dysfunction of the lower quadrant
10. Assistive technology used for stability and mobility to enhance function.
11. Assistive technology used for stability and mobility to enhance function.
12. Evidence based practice to formulate effective assessment and treatment program
13. Evaluation of disability
14. Legislation and social care.
15. Assessment and management of Integumentary impairments due to musculoskeletal dysfunction.
16. Clinical decisions for upper quadrant function in presence of lower quadrant dysfunction

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**CLINICAL POSTING**

<b>Academic Year</b>	<b>Posting – Indoor and Outdoor (In Rotation)</b>
First Year	General Medical, General Surgical, Cardiovascular and respiratory, Neurology, Intensive Care Units
Second & Third year (Specialty area)	Acute care & Rehabilitation in Musculoskeletal dysfunctions: Indoor and Outdoor patients



## M.P.Th. (Neurophysiotherapy)

### PAPER I: Applied Physiotherapeutics- (Part I)

- 1) Manual Medicine and Therapeutic Exercise
  - Principles of mobilization
  - Soft tissue mobilization
  - Types of techniques
  - Rationale of choice for therapeutic use in neuromusculoskeletal dysfunction
- 2) Clinical Biomechanics: Kinetics and kinematics of normal movement and posture, and its alteration in disease and neuromusculoskeletal dysfunction.
- 3) Analysis of gait motion and its deviation in neuromusculoskeletal dysfunction
- 4) Application of principles of ergonomics and bioengineering in neuromusculoskeletal dysfunction.
- 5) Fitness and Health Promotion
  - Definition of Health, Fitness and Quality of Life
  - Nutrition and fitness in normal of various ages, women, children, elderly and sports
  - Application of Diet and fitness in case of PWD (Person with disability) due to neuromuscular disease.
  - Application of principles of exercise physiology in management of movement dysfunction, in illness or disease, in special populations e.g. the central neural v/s peripheral limitations, to exercise or occupation-related performance in individuals with disease and dysfunction.
- 6) Research Methodology and Biostatistics
  - Basic concept of research
    - Definition and scope – principles of measurement
    - Research design – reliability
    - Research problems – validity
    - Sampling techniques
    - Data collection
    - Hypothesis testing
  - Types of studies  
Case Control – prospective – survey – cross-sectional – retrospective – single case design – cohort – longitudinal – descriptive research – correlational – clinical – experimental design – sequential clinical design
  - Statistics
    - Types of data
    - Measures of average, median, frequency and dispersion
    - Correlation and regression
    - Test of significance
    - Parametric and non-parametric test
    - Gaussian Curve
    - Standard deviation
    - Data management
  - Scientific Communication
    - Writing a research proposal, reporting the results and evaluation
    - Introduction to computer- data communication, search engines, websites, MeSH
    - Literature Search
    - Evaluating Evidence
    - Critical appraisal of article, systematic reviews, meta-analysis

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## **PAPER II: Applied Physiotherapeutics- (Part II)**

1. Applied Neuro-anatomy and neurophysiology
2. Principles and rationale of Neuro-therapeutic skills of management, neurodevelopmental and neurophysiological approaches
3. Growth, Development and Aging of neuromusculoskeletal system
4. Advanced Electrotherapeutics including Electrodiagnosis
5. Scales for evaluation of Quality of Life and neurological disability.
6. Education – Formal and non-formal – Philosophy of health education, curricular planning. Teaching technology – teaching learning methods, interactive learning, methods to facilitate learning, use of audio-visual aids, clinical teaching.
7. Ethics in Physiotherapy practice and research, code of conduct for safe disciplined practice – legal aspect, Rights and responsibility of physiotherapist and client, PWD Act, Rules and regulations governing physiotherapy practice- National & International
8. Administration -
  - Physiotherapy Management in Hospital, community & Industry.
  - Principles of management, planning, organisation, budget, policy procedures and quality assurance.
  - Communication skills, leadership quality & teamwork
  - Marketing health and wellness
  - Importance of documentation, types of documentation systems, documentation of professional assessment including International Classification of Functioning Disability and Health (ICF) format.

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### **PAPER III: Advances in Neurophysiotherapy - (Part I)**

This paper will focus on advances in theory and practices in paediatric neurological conditions

1. Gross and fine motor development skills, posture and gait examination and functional performance
2. Facilitation of development using appropriate skills in a neurologically disabled child
3. Congenital and acquired disorders affecting growth and development of child
4. Advanced skills in assessment of paediatric neuropathological, neuropsychological and neurosurgical conditions
5. Advanced Physiotherapy approaches – Neurophysiological principles, skills of handling in various approaches and rationale for effective management.
6. Clinical decision making and evidence based practice to formulate effective assessment and treatment program
7. Theories of motor control and learning, perceptuomotor and sensory issues in children
8. Early identification of paediatric neurological disorders and early intervention skill.
9. Role of Physiotherapy in progressive paediatric neurological conditions, management of terminally ill child
10. Role of Physiotherapy in-Neonatal intensive care units
11. Social integration of child in school and community – measures to ensure – attitudinal, environmental, manpower, assistive technology, legislation and support
12. Assessment, clinical reasoning and management, of Integumentary and other system impairments due to neuromusculoskeletal dysfunction.
13. Pharmacotherapeutics in neurological conditions and its relevance in physiotherapy

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## **PAPER IV: Advances in Neurophysiotherapy (Part II)**

This paper will focus on advances in theory and practices in adult neurological conditions

1. Neurodevelopmental and neurophysiological approaches in Adult neurological conditions
2. Advance skills in assessment of adult neuro-pathological, neuropsychological and neurosurgical conditions
3. Various outcome measures and assessment methods used in geriatric & adult neurological conditions
4. Clinical decision making and evidence based practice to formulate effective assessment and treatment program
5. Advanced Neuro-therapeutic skills for management
6. Role of Physiotherapy in progressive neurological conditions, management of terminally ill patient.
7. Facilitation and coping up with problems associated with ageing.
8. Prevention of age related complications  
Social integration in community – measures to ensure – attitudinal, environmental, manpower, assistive technology, legislation and support
9. Pharmacotherapeutics in neurological conditions and its relevance in physiotherapy

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**CLINICAL POSTING**

<b>Academic Year</b>	<b>Posting – Indoor and Outdoor (In Rotation)</b>
First Year	General Medical/ General Surgical/ Musculoskeletal (indoor and OPD)/cardiovascular and respiratory (indoor and O.P.D/ intensive care units
Second & Third year (Specialty area)	Neonatal and Acute care and Rehabilitation of neuromedical and surgical disorders: Adult Neuro-medical, neurosurgical and OPD, Pediatrics Neuro-medical, neurosurgical and OPD, Early intervention,

## **M.P.Th. Cardiovascular and Respiratory Physiotherapy)**

### **PAPER I: Applied Physiotherapeutics- (Part I)**

- 1) Structure and function of Cardiovascular & Respiratory system - Changes occurring with, development, growth and ageing
- 2) Impairments of Cardiovascular and Respiratory system from cell to system with clinical reasoning.
- 3) Applied Biomechanics:
  - kinetics and kinematics of Respiration and its alteration with disease and dysfunction.
  - Dynamics of circulation and its alteration in disease
  - Analysis of gait motion along with energy expenditure with various gaits
- 4) Application of principles of bioengineering in various cardiovascular and respiratory dysfunctions.
- 5) Assessment of Physical and functional capacity.
- 6) Manual Medicine and Therapeutic Exercise
  - Principles of mobilization
  - Soft tissue mobilization
  - Types of techniques
  - Rationale of choice for therapeutic use
  - Mobilisations as applied to spine , thorax and ribcage
- 7) Fitness and Health Promotion
  - Definition of Health, Fitness and Quality of Life
  - Principles of exercise physiology in health and disease.
  - Nutrition and fitness in normal of various ages, women, children, elderly and sports
  - Application of Diet and fitness in case of PWD (Person with disability) due to cardiovascular and respiratory disease
  - Application of principles of exercise physiology in movement dysfunction in illness & disease in special populations e.g. the central neural vs. peripheral limitations to exercise or occupation-related performance in individuals with disease and dysfunction.
- 8) Alternative therapies in treating cardiovascular and respiratory dysfunctions
- 9) Research Methodology and Biostatistics
  - Basic concept of research
    - Definition and scope – principles of measurement
    - Research design – reliability
    - Research problems – validity
    - Sampling techniques
    - Data collection
    - Hypothesis Testing
  - Types of studies
    - Case Control – prospective – survey – cross-sectional – retrospective – single case design – cohort – longitudinal – descriptive research – correlational – clinical – experimental design – sequential clinical design
  - Statistics
    - Types of data
    - Measures of average, median, frequency and dispersion
    - Correlation and regression
    - Test of significance
    - Parametric and non-parametric test
    - Gaussian Curve
    - Standard deviation
    - Data management

- Scientific Communication
  - Writing a research proposal, reporting the results and evaluation Introduction to computer-data communication, search engines, websites, MeSH
  - Literature Search
  - Evaluating evidence
  - Critical appraisal of article, systematic reviews and meta-analysis

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## **PAPER II: Applied Physiotherapeutics- (Part II)**

- 1) Principles and rationale of Neuro-therapeutic skills of management, neurodevelopmental and neurophysiological approaches
- 2) Advanced Electrotherapeutics and electrodiagnosis
- 3) Scales for evaluation of quality of life in patients with cardiovascular and respiratory dysfunction.
- 4) Evaluation of disability with cardiovascular and respiratory dysfunction.
- 6) Education – Formal and non-formal – Philosophy of health education, curricular planning. Teaching technology – teaching learning methods, interactive learning, methods to facilitate learning, use of audio-visual aids, clinical teaching
- 7) Ethics in Physiotherapy practice, clinical and research, code of conduct for safe disciplined practice – legal aspect, Rights and responsibility of physiotherapist and client, PWD Act .Rules and regulations governing physiotherapy practice- National & International
- 8) Administration -
  - Physiotherapy Management in Hospital, community & Industry.
  - Principles of management, planning, organisation, budget, policy procedures and quality assurance.
  - Communication skills, leadership quality & teamwork
  - Importance of documentation, types of documentation systems, documentation of professional assessment including International Classification of Functioning Disability and Health (ICF) format.
- 9) Disability evaluation, legislation, certification and social care

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**PAPER III : Advances in Cardiovascular and Respiratory Physiotherapy (Part I).**

**(Respiratory Physiotherapy)**

1. Structural, functional and Biomechanical basis for assessment and management of dysfunctions of the respiratory system and thorax throughout the life span.
2. Clinical reasoning in physiotherapeutic evaluation & management of all neonatal ,pediatric, adult and geriatric dysfunctions of the respiratory system and thorax in acute care and in rehabilitation
3. Advances in functional diagnostic procedures & various outcome measures relevant to assess intervention to dysfunctions of thorax and respiratory system.
4. Interpretation and application of Investigations related to Respiratory and thoracic dysfunction and its relevance to physiotherapy
5. Evidence based practice in management of Respiratory & Thoracic impairments & dysfunction.
6. Pulmonary rehabilitation
7. Ergonomics and energy conservation in Respiratory dysfunction and use of assistive devices to enhance function and performance.
8. Pathology of pain in medical and Post-surgical conditions related to thoracorespiratory dysfunction and advances in its evaluation and management
9. Clinical decision making and evidence based practice in physiotherapeutic evaluation & management of all medical , surgical and traumatic disorders across the life span in a critical care (ICU) setting
10. Management of the critically ill: knowledge of Airways -types & management Mechanical ventilator, use of Oxygen therapy; Physiotherapeutic Interventions in intensive care ,weaning and ICU monitoring .
11. Postoperative respiratory care
12. Principles of health and performance, Risk stratification, Prevention and health promotion
13. Pharmacotherapeutics in respiratory condition and its relevance with physiotherapy

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## **PAPER IV: Cardiovascular and Respiratory Physiotherapy (Part II)**

### **(Cardiovascular Physiotherapy)**

1. Structural and functional and Biomechanical basis for assessment and management of dysfunctions of the circulatory system including peripheral vessels and mediastinum throughout the life span.
2. Clinical decision making skills in physiotherapeutic evaluation & management of all neonatal ,pediatric, adult and geriatric dysfunctions of the cardiovascular including peripheral vasculature system and mediastinum in acute care and rehabilitation
3. Advances in functional diagnostic procedures & various outcome measures relevant to assess intervention to dysfunctions of cardiovascular and peripheral vascular system.
4. Evidence based practice in assessment and management of cardiovascular and peripheral vascular dysfunction and failure
5. Ergonomics and energy conservation in cardiovascular dysfunction and use of assistive devices to enhance function and performance.
6. Pathology of pain in medical and surgical impairments related to cardiovascular dysfunction and advances in its evaluation and management
7. Clinical decision-making skills in physiotherapeutic evaluation & management of all medical, surgical and traumatic conditions across the life span in a critical care (ICU) setting
8. Management of the critically ill: knowledge of Airways -types & management Mechanical ventilator, use of Oxygen therapy; Physiotherapeutic Interventions in intensive care, weaning and ICU monitoring
9. Postoperative respiratory care
10. Cardiac Rehabilitation
11. Vascular rehabilitation
12. Principles of health and performance, Risk stratification, Prevention and health promotion
13. Interpretation and application of Investigations related to Respiratory, cardiac and thoracic dysfunction and its relevance to physiotherapy.
14. Pharmacotherapeutics in cardiac condition and its relevance with physiotherapy.
15. Clinical decision-making skills in physiotherapeutic evaluation & management of Lifestyle disorders.
16. Cardio-Respiratory fitness testing and training in sports and diseases
17. Knowledge and skill of basic life support
18. Clinical reasoning, assessment and management of Integumentary and other system impairments due to cardiovascular and respiratory diseases

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## **CLINICAL POSTING**

<b>Academic Year</b>	<b>Posting – Indoor and Outdoor (In Rotation)</b>
First Year	General Medical, General Surgical wards, Orthopaedic (indoor and Outdoor), neurology(indoor & Outdoor)
Second & Third year (Specialty area)	Acute care & Rehabilitation in Cardiovascularthoracic & Respiratory dysfunctions: Intensive care units, Cardiovascular, thoracic & Respiratory, (indoor & OPD)

## M.P.Th. (Community Physiotherapy)

### PAPER I : Allied Physiotherapeutics- (Part I)

#### 1) Epidemiology

#### 2) Manual Medicine and Therapeutic Exercise

- Principles of mobilization
- Soft tissue mobilization
- Types of techniques
- Rationale of choice for therapeutic use

#### 3) Clinical Biomechanics and Bioengineering

#### 4) Fitness and Health Promotion

- Definition of Health, Fitness and Quality of Life
- Nutrition and fitness in normal of various ages, women, children, elderly and sports
- Application of Diet and fitness in case of PWD (Person with disability) due to disease
- Application of principles of exercise physiology in management of movement dysfunction in illness or disease in special populations e.g. the central neural v/s peripheral limitations to exercise or occupation-related performance in individuals with disease and dysfunction.

#### 5) Research Methodology and Biostatistics

- Basic concept of research
  - Definition and scope – principles of measurement
  - Research design – reliability
  - Research problems – validity
  - Sampling techniques
  - Data collection
- Types of studies

Case Control – prospective – survey – cross-sectional – retrospective – single case design – cohort – longitudinal – descriptive research – correlational – clinical – experimental design – sequential clinical design

- Statistics
  - Types of data
  - Measures of average, median, frequency and dispersion
  - Correlation and regression
  - Test of significance
  - Parametric and non-parametric test
  - Gaussian Curve
  - Standard deviation
  - Data management
- Scientific Communication
  - Writing a research proposal, reporting the results and evaluation Introduction to computer-data communication, search engines, websites, MeSH
  - Literature search
  - Evaluating evidence
  - Critical appraisal of article, systematic reviews and meta-analysis

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## **PAPER II : Applied Physiotherapeutics- (Part II)**

- 1) Applied Neuro-anatomy and neurophysiology
- 2) Principles and rationale of Neuro-therapeutic skills of management, neurodevelopmental and neurophysiological approaches
- 3) Growth, Development and Aging
- 4) Basis and Biomechanics of postural movement patterns, analysis of gait motion
- 5) Advanced Electrotherapeutics
- 6) Electrodiagnosis and Electrophysiological investigation
- 7) Assessment scales for impairment / disability / handicap and Quality of Life (Generic and specific)
- 8) Education – Formal and non-formal – Philosophy of health education, curricular planning. Teaching technology – teaching learning methods, interactive learning, methods to facilitate learning, use of audio-visual aids, clinical teaching
- 9) Ethics in Physiotherapy practice, code of conduct for safe disciplined practice – legal aspect, Rights and responsibility of physiotherapist and client, PWD Act
- 11) Administration -
  - Ethical issues & legal aspects in practice of physiotherapy- Clinical, Research and Academics. Administration, legislation, Rules and regulations governing physiotherapy practice- National & International.
  - Physiotherapy Management in Hospital, community & Industry.
  - Principles of management, planning, organization, budget, policy procedures and quality assurance.
  - Communication skills, leadership quality & teamwork
  - Importance of documentation, types of documentation systems, documentation of professional assessment including International Classification of Functioning Disability and Health (ICF) format.

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### **PAPER III: Advances in Community Physiotherapy (Part I)**

- 1) Health care in the Community – Principles & delivery systems
- 2) Principles and practice of fitness training for health promotion in community
- 3) Clinical decision-making skill in assessment & management of dysfunction related to Community health.
- 4) Geriatric health, fitness, & rehabilitation
- 5) Ergonomic considerations, health, fitness, assessment, prevention and management of Injuries with special reference to Home, Industry and workplace
- 6) Occupational Health and related disorders
- 7) Man-machine interaction
- 8) Applied anatomy, physiology and biomechanics related to women's health, maternal & child health
- 9) Early detection of "at risk" babies and early intervention in the community
- 10) Yoga

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## **Paper IV: Advances in Community Physiotherapy (Part II)**

- 1) Community Dynamics
- 2) Principles and practice of Rehabilitation and outreach services including domiciliary services
- 3) Advances in disaster management
- 4) Principles and practice of Community Based Rehabilitation
- 5) Physiotherapist as a CBR manager & Master trainer for community health programmes
- 6) Disability Assessment for quantification of extent of disability
- 7) Quality of life and its measures
- 8) Survey
- 9) Evidence Based Practice in Community Health.
- 10) Information, Education and Communication (IEC) for Community Awareness
- 11) Access issues and appropriate interventions
- 12) Appropriate Technology, Assistive devices used for Stability & Mobility to enhance function
- 13) National & International Legislations for PWD and Regulatory Agencies

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**Clinical Posting :**

<b>Academic Year</b>	<b>Posting – Indoor and Outdoor (In Rotation)</b>
First Year	General Medical, General Surgical, Orthopedic, neurology, cardio respiratory (medical and surgical), OPD, intensive care units etc
Second and third year (Specialty area)	Gynaec and Obstetric, antenatal postnatal OPD, geriatric OPD, PHC/CHC in Rural areas, Urban slums, Industry, Old Age Homes, Physical Rehabilitation Centers



### Scheme of Examination

Sr. No.	Passing Head	Total Marks	Minimum Marks required for passing
1.	Theory	400	200
2.	Practical including viva voice	400	200
	Total Marks	800 Marks	400 Marks

- i) A Candidate must pass in two heads i.e. Theory and Practical {Clinical including Oral viva}, separately at the same time.
- ii) In Theory examination candidate must obtain 50% marks in theory. As far as individual paper is concerned a candidate must obtain minimum 40 Marks in each Theory paper but a candidate should obtain at least 50% marks to pass theory exam.
- iii) In Practical, Candidate must obtain 50% of Total Marks to pass practical examination.

#### Theory Examination:-

- i. There shall be four Theory Papers of 100 Marks each.
- ii. Each paper shall be of 3 hours duration.
- iii. All questions are compulsory.

Q. No.	Nature of Question	Distribution of Marks	Total Marks
1.	Long Answer Questions	1×30	30 Marks
2.	Long Answer Questions	1×30	30 Marks
3.	Solve any four out of five SAQ	4×10	40 Marks

- In Applied Physiotherapeutics in Paper I and II for all specialties, the topics of research methodology, ethics management and teaching technology will be preferably asked as Short Answer Questions.

Paper wise distribution of topics is as given below:-

#### **Exam Paper No.**

#### **Topic/Nomenclature**

Paper I	Applied Physiotherapeutics – (Part I)
Paper II	Applied Physiotherapeutics – (Part II)
Paper III	Advances in Specialty (Part I)
Paper IV	Advances in Specialty (Part II)

### **Practical /Clinical Examination: -**

It should be aimed for assessing competence of skills of techniques and procedures as well as testing students ability to make relevant and valid observations, interpretations and inferences using laboratory or experimental work relating to his/her subject.

### **A) PRACTICAL SCHEME: -**

<b>Sr. No.</b>	<b>Heading</b>	<b>Marks</b>
1.	<b><u>Specialty Case 1:</u></b> - <u>Neurophysiotherapy</u> - Adult Neuro-pathological Condition <u>Musculoskeletal Physiotherapy</u> - degenerative/inflammatory/infective/congenital/non-traumatic condition <u>Cardiovascular Respiratory Physiotherapy</u> - Cardiovascular condition <u>Community Physiotherapy</u> – Any case of Physically disabled because of congenital / acquired disorder	150
2.	<b><u>Specialty Case 2:</u></b> - <u>Neurophysiotherapy</u> - Paediatric Neuro-pathological Condition <u>Musculoskeletal Physiotherapy</u> - Traumatic condition <u>Cardiovascular Respiratory Physiotherapy</u> - Respiratory condition <u>Community Physiotherapy</u> – Any case based on Geriatric / Women's health / Child care/Industrial set up ( <b>preferably evaluated &amp; examined at the site / in the community / at the patient's home or home for the Aged</b> )	150
4.	<b><u>Spots:</u></b> - (5 spots 5 Marks each). <u>Neurophysiotherapy</u> – e.g. electro diagnosis, orthosis, X-Ray, CT scans MRI, etc. <u>Musculoskeletal Physiotherapy</u> – e.g. electro diagnosis, orthosis, prosthesis, X-Ray (spine and extremities) etc. <u>Cardiovascular Respiratory Physiotherapy</u> – e.g. pulmonary function test, electro cardiogram, X-Ray, Arterial Blood Gas Analysis, CT scan (Thorax) , MRI, (Thorax), etc. <u>Community Physiotherapy</u> - e.g. electro diagnosis, orthosis prosthesis, pulmonary function test, electro cardiogram, X-Ray, Arterial Blood Gas Analysis, CT scan, MRI, etc.	25
5.	<b><u>Viva Voice:</u></b> - Based on Dissertation	50
6.	<b><u>Micro Teaching</u></b> (Teaching of any topic or section in specialty subject)	25
	<b>Total</b>	400

B) **Number Of Candidate:** - The maximum number of candidate to be examined in Clinical / Practical and oral shall not exceed 8 per batch of two days examination.

C) **Criteria for examiner:** - All the Post Graduate Examiners shall be recognized Post Graduate Teachers holding recognized Post Graduate qualifications in the subject concerned with minimum 5 yrs P.G. Teaching experience.

D) **Number of Examiners for Practical:** -

There shall be four examiners: Two Internal and two external.

Internal 1: - Same centre (Convenor)

Internal 2: - Out side the college within same region.

External 1: - Within MUHS from other region.

External 2: - Outside state, if not available then, outside MUHS jurisdiction within state.

## **DISSERTATION: -**

1. Every candidate pursuing M.P.Th degree course is required to carry out work on a selected research project under the guidance of a recognized postgraduate teacher. The results of such a work shall be submitted in the form of a dissertation.
2. The dissertation is aimed to train a postgraduate student in research method and techniques. It includes identification of a problem, formation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, statistical analysis of results, discussion and drawing conclusion.
3. Every candidate shall submit to the Registrar of the University in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the course or on or before the dates notified by the University. The synopsis shall be sent through the proper channel.
4. Such synopsis will be reviewed and the dissertation topic will be registered by the University.
5. Thesis Topics will be submitted 6 months after admission.
6. The ethics committee (College level) approval is mandatory.
7. Thesis (Whole) submitted after 30 months or 6 months before final examination.
8. The dissertation should be written under the following headings:
  - i. Introduction
  - ii. Need for the study
  - iii. Aims or Objectives of study
  - iv. Review of Literature
  - v. Material and Methods
  - vi. Results
  - vii. Discussion
  - viii. Conclusion
  - ix. Limitation
  - x. Clinical Implication- Suggestion
  - xi. Summary
  - xii. Tables
  - xiii. Annexure

9. The written text of dissertation shall be not less than 50 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and head of the institution.

10. Five copies of dissertation along with CD (Softcopy) thus prepared shall be submitted to the controller of Examination, six months before final examination on or before the dates notified by the University.

11. The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate to appear in the University examination.

12. Guide: - The academic qualification and teaching experience required for recognition by this University as a guide for dissertation work is as per M.U.H.S rules of PG teachers .

13. Change of guide: - In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the university.

14. Thesis shall be examined by a minimum of 3 examiners, (Appointed by University) one internal and Two external who shall be examiners for clinical / practical also.

15. At least two examiners shall approve the same otherwise candidate has to redo the dissertation.

16. Candidate is allowed to appear for the exam only after acceptance of thesis.

17. The presentation and submission of dissertation will be as per the guidelines set by the Controller of Examinations in Notification No 08/2010 (Guidelines for submission of dissertation of MPTTh Courses) and or as per notification revised from time to time

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