Syllabus

Master of Physiotherapy (MPT)

The Masters Degree in Physiotherapy is a two year program consisting of classroom teaching, self academic activities and clinical posting. In the first year theoretical basis of physiotherapy is refreshed along with research methodology and biostatistics. The students are rotated in all areas of clinical expertise during this period. They are required to choose their study for dissertation and submit a synopsis. During the second year the students will be posted in their area of specialty.

They are required to complete and submit their dissertation. 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, workshop to enhance their knowledge during the course of study. University examinations are held at the end of first year and at the end of second year.
Electives Offered and Degree Awarded

1. Master of Physiotherapy in Sports (and Musculoskeletal Disorders)
2. Master of Physiotherapy in Neurological (and Psychosomatic) Disorders
3. Master of Physiotherapy in Cardio-Respiratory Disorders
4. Master of Physiotherapy in Community Rehabilitation
5. Master of Physiotherapy in Pediatrics

Course Content and Structure

The course subjects are outlined under two major headings – Core Subjects or Subjects Mandatory for all students and Electives or Subjects of Specialty:

CORE SUBJECTS

1. Principles of Physiotherapy Practice
2. Research Methodology and Biostatistics
3. Biomechanics
4. Exercise Physiology
5. Electrophysiology
6. Physical and Functional Diagnosis
7. Physiotherapeutics

ELECTIVE

a. Musculoskeletal Disorders and Sports
b. Neurological and Psychosomatic Disorders
c. Cardio-Respiratory Disorders
d. Community Rehabilitation
e. Pediatrics

Dissertation work
# Scheme of Examination

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PARTICULARS OF THEORY QUESTION PAPERS AND DISTRIBUTION OF MARKS

A written examination consisting of 5 question papers each of three hours duration & each paper carrying 100 marks. The Paper-V will be Elective subject & a separate paper for each elective subject chosen by the candidate will be given. Particulars of Theory question paper & distribution of marks are shown below.

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<tr>
<th>PAPER</th>
<th>SUBJECTS</th>
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<td>Paper-I</td>
<td>1. Principles of Physiotherapy Practice</td>
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<td>2. Research Methodology and Biostatistics</td>
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<td>Paper-III</td>
<td>6. Physical and Functional Diagnosis</td>
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<td>a. Musculoskeletal Disorders and Sports</td>
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PARTICULARS OF CLINICAL / PRACTICAL EXAMINATION AND DISTRIBUTION OF MARKS

Clinical Examination will be aimed at examination of clinical skills and competence of the candidates for undertaking independent work as a specialist.

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<thead>
<tr>
<th>PRACTICAL</th>
<th>SUBJECT</th>
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<tbody>
<tr>
<td>Practical-I</td>
<td>Short case from area other than Elective to assess investigative and diagnostic skills</td>
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<tr>
<td>Practical-II</td>
<td>Short case from area other than Elective to assess patient management skills</td>
<td>30</td>
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<tr>
<td>Practical-III</td>
<td>Major Elective long case aimed at examining clinical skills and competency of the candidate for undertaking independent work as specialist</td>
<td>100</td>
</tr>
<tr>
<td>Practical-IV</td>
<td>Short case from area of Elective to assess patient management skills</td>
<td>50</td>
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PARTICULARS OF VIVA-VOCE & DISSERTATION

Viva-Voce examination shall aim at assessing depth of knowledge, logical reasoning, confidence & oral communication skills. Special emphasis shall be given to dissertation work during the MPT Part II examination. The marks of Viva-Voce examination shall be included in the clinical examination to calculate the percentage and declaration of results.

CRITERIA FOR DECLARING PASS

A candidate shall be declared pass if he / she secures a paper minimum 40% of maximum marks in each paper and 50% of maximum marks in theory aggregate and secures a minimum 40% of maximum marks in each practical and 50% of maximum marks in Practical / Clinical and VivaVoce aggregate.

DESCRIPTIVE COURSE CONTENT

PRINCIPLES OF PHYSIOTHERAPY PRACTICE

1. Development of Physiotherapy Profession


3. History taking, assessment, tests, Patient communication, documentation of findings, treatment organization and planning/execution for intervention.

4. Documentation of rehabilitation assessment and management using International Classification of Functioning Disability and Health (ICF)

5. Standardized tests and scales used in various types of cases for assessment and interpretation in Physiotherapy practice.
RESEARCH METHODOLOGY AND BIOSTATISTICS

1. Introduction to biostatistics and research methodology.
2. Basic probability and sampling distributions.
3. Processing and analysis of data.
5. Significance based on parametric and non-parametric tests
6. Research process and criteria of good research
7. Sampling and Sample size determination.
8. Various epidemiological study designs.
10. Format of scientific documents. (structure of protocols, formats reporting in scientific journals, systematic reviews and meta analysis)

BIOMECHANICS

1. Biomechanics of Tissues and structures of the musculoskeletal system.
4. Biomechanics of respiration, circulation, hand function and gait.
5. Methods of kinetics and kinematics investigation
6. Patient Positioning, Body Mechanics and Transfer Techniques
7. Ergonomic Approach to lifting and handling, workspace and Environment
EXERCISE PHYSIOLOGY

1. Sources of Energy, Energy Transfer and Energy Expenditure at rest and various physical activities.
2. Physiology of Movement
3. Responses and Adaptations of various systems to Exercise and training.
5. Special aids to performance and conditioning.
7. Considerations of age and sex in exercise and training.
8. Exercise prescription for health and fitness with special emphasis to cardiovascular disease, Obesity and Diabetes.
9. Fatigue assessment and scientific organization of work-rest regimes to control fatigue.

ELECTROPHYSIOLOGY

2. Instrumentation for neuromuscular electrical stimulation.
3. Anatomy and physiology of peripheral nerve, muscle and neuromuscular junction.
4. Electrical properties of muscle and nerve.
5. Muscles plasticity in response to electrical stimulation.
6. Electrical stimulation and its effects on various systems.
7. Clinical Electro physiological testing.
PHYSICAL & FUNCTIONAL DIAGNOSIS

1. Clinical examination in general and detection of movement dysfunction.

2. Principles of pathological investigations and imaging techniques related to neuromuscular, skeletal and cardiopulmonary disorders with interpretation.


4. Anthropometric measurements.

5. Physical fitness assessment by Range of motion, Muscle strength, endurance and skills, Body consumption, Fitness test for sports.

6. Evaluation Methods, Special tests and Scales used in Musculoskeletal, Neurological and Cardiopulmonary disorders.

7. EMG and Biofeedback.


10. Aids and appliances, adaptive functional devices to improve movement dysfunction.

11. Exercise ECG testing and monitoring.

12. Pulmonary function tests and Spirometry.

13. Physical disability evaluation and disability diagnosis.

PHYSIOTHERAPEUTICS

1. Pain (neurobiology, various theories, modulation and management of pain)
3. Theories of motor control and motor learning.
4. Theories of aging.
5. Cardiopulmonary medications and their effect on activity performance.
6. Exercise planning and prescription.
7. Use of Exercise therapy techniques and application on various types of cases.
8. Application of electrotherapy techniques on patients, monitoring of dosages and winding up procedure.
9. Ergonomic aspects of exercise on oxygen, energy consumption MET value of various exercises and activity.
10. Effect of aerobic, anaerobic as well as Isometric and Isokinetic exercises on cardiac function.
11. Physiotherapy in psychiatric conditions.
12. Massage, Mobilization and Manipulation
13. Manual therapy – different schools of thought
15. Facilitation and inhibition techniques.
17. CPR, monitoring systems and defibrillators and artificial respirators.
18. Physiotherapy in common conditions of skin.
19. Physiotherapy following Plastic Surgery.

20. Physiotherapy Following Obstetric and Gynecological Disorders.

21. Yoga


b) Asana: Definition, Scope and Limitations of Asanas – Classification of Asanas – Safety Measures and Precautions while performing Asanas

c) Pranayama: Meaning – Different Phases in Pranayama Practice Safety Measures and Precautions.


e) Practicing methods and benefits of Kriyas – Meaning – Types of Kriyas; Neti; Dhauthi.

ELECTIVE SUBJECTS

MUSCULOSKELETAL DISORDERS AND SPORTS

1. Applied anatomy with emphasis on Biomechanics & Kinesiology of Human motion and Work Physiology

2. Clinical assessment and rationale of Laboratory investigations along with differential diagnoses.

3. Clinical Symptomatology, Pathophysiology and Patho-mechanics of musculoskeletal conditions

4. Physiotherapy management following fractures, dislocations and their complications, Amputations, cumulative trauma disorders and Burns.

5. Physiotherapy management in degenerative disorders and allied conditions.

6. Physiotherapy in post operative management of metabolic, hormonal, neoplastic and infective conditions of bones and joints.

7. Physiotherapy following arthroplasty, implants and soft tissue repairs.


9. Kinetic and kinematics analysis for various functional activities.

10. Functional assessment (Hand function, Gait, Posture A.D.L; occupational work).

11. Hand Rehabilitation.


13. Physiotherapy management of locomotor disorder, principles of medical and surgical aspects, sports psychology and retraining.

15. Analysis and classification of sports and sports specific injuries and its management.

16. Management of sport injuries, sports fitness

17. Principles of Injury Prevention


19. Rehabilitation of paediatric musculoskeletal disorders.

20. Orthopaedic implants-designs, materials, indications, post-operative assessment and training.


23. Pilates-school of thought, Chiropractic school of thought, Osteopathic school of thought

24. Myofascial Release technique and Muscle Energy technique


26. Neuromuscular Taping Techniques

27. Electro diagnosis: Electromyography and evoked potential studies.

28. Community based rehabilitation in musculoskeletal disorders.

29. Recent Advances in Musculoskeletal Disorders and Sports Physiotherapy.
NEUROLOGICAL AND PSYCHOSOMATIC DISORDERS

1. Anatomy and Physiology of Nervous System.

2. Normal sequential behavioral and Physiological changes throughout the developmental arc.

3. Neurophysiology of balance, coordination and locomotion.

4. Clinical symptomatology and Pathophysiology of the neurological disorders

5. Principles of clinical neuro diagnosis and investigation.


7. Electrodiagnosis:
   a. Neurophysiology of Nerve conduction studies and Electromyography.
   b. Instrumentation of Electrical stimulator, EMG, SFEMG, NCS (Nerve Conduction Studies).
   d. Repetitive nerve stimulation.
   e. Evoked potentials (SSEP, MEP, BAERA, and VER).
   f. Interpretation of neurophysiologic responses in Neuropathy, myopathy and neuromuscular disorders.

8. Evaluation of A.N.S dysfunction with reference to psycho-physiological testing. Biofeedback training


10. Theories of motor control and theories of motor learning, its application in physiotherapy.
11. Common facilitatory and inhibitory techniques.

12. Treatment approaches in neurological rehabilitation: Bobath, NDT, SI, Brunnstrom, Roods, PNF, Vojta, MRP, MFR

13. Musculoskeletal treatment concept applied to neurology: Adverse neural tissue tension tests in upper limb and lower limb.

14. Pathophysiology and Management of tonal abnormalities (Spasticity, Rigidity, Hypotonia, and Dystonia)

15. Medical and Physiotherapy management following Cerebrovascular accidents.

16. Traumatic Brain Injury. (ICU management, Coma stimulation, Restoration of motor control, Rehabilitation and community integration)

17. Traumatic spinal cord injuries. (ICU management, Coma stimulation, Restoration of motor control, Rehabilitation and community integration)

18. Physical therapy management of demyelinating, inflammatory, infectious, degenerative and metabolic diseases of the nervous system.

19. Physical therapy management of Motor neuron diseases, neuromuscular junction disorders, Brain tumor, and Neuro cutaneas disorders

20. Diseases of spinal cord, peripheral nerves and cranial nerves


22. Paediatric neurology (Cerebral Palsy, Developmental disorders, Neuropsychiatric disorders, Cerebral & Craniovertebral anomalies & metabolic disorders of nervous system).


24. Oromotor rehabilitation.


26. Bladder and Bowel dysfunction and its rehabilitation.
27. Assessment and management of various neurological gaits.


29. Associated functional disturbances of higher functions and their testing and training.


31. Learning skills, A.D.L and functional activities.

32. Aids and appliances in neurological disorders. Prescriptions, testing and training.

33. Basic knowledge of drugs used for neurological conditions.

34. Assessment of fitness and exercise prescription for special neurological population – Stroke, Paraplegia, TBI, Multiple Sclerosis, MND, Parkinsonism, & Ataxia.

35. Community based rehabilitation for neurological dysfunction. Disability evaluation and management.

36. Recent Advances in Neurological Rehabilitation.
1. Anatomy and physiology of cardio-vascular and respiratory systems.

2. Biomechanics of respiration.

3. Intrauterine development of cardiopulmonary system and difference between the adult and pediatric cardiopulmonary system.

4. Epidemiology, Symptomatology and pathophysiology of the cardio-respiratory disorders.

5. Clinical assessment, rationale of laboratory investigations and differential diagnosis,


7. Evaluation cardiac dysfunction. [ECG, exercise ECG testing, Holter monitoring etc., Echocardiogram, X-Ray, Imaging techniques etc.]

8. Evaluation of peripheral vascular disorders: clinical, blood flow studies, temperature plethysmography. A.N.S dysfunction testing.

9. Risk factors and preventive measures in cardio respiratory conditions


11. Intensive care unit – Concept and set-up, equipment for advanced methods of resuscitation, monitoring and patent management: artificial airways, ventilators, pulse -oxymetry etc

12. Oxygen therapy.

13. Cardio-pulmonary resuscitation.
14. Respiratory physiotherapy techniques – Techniques to improve lung volume; techniques to reduce the work of breathing and techniques to clear secretions.

15. Physiotherapy management for common conditions in the ICU

16. Poisoning, Drug overdose, and Drowning.

17. Physiotherapy management following general Medical & Surgical conditions

18. Physiotherapy management of peripheral vascular disorders

19. Exercise testing, planning and prescription: aerobic and anaerobic exercise training.

20. Respiratory Pharmacology

21. Physiotherapy management in Obstructive and restrictive lung disorders

22. Pulmonary Rehabilitation

23. Physiotherapy management following congenital and acquired heart diseases

24. Cardiac rehabilitation – Conservative and post-operative management.

25. Physiotherapy modalities used for wound healing

26. Exercise Prescription for health promotion and fitness for special populations- DM, Obesity, IHD, COPD, HTN

27. C.B.R in Cardio-vascular and respiratory conditions.

28. Recent advances in Cardio respiratory physiotherapy.
COMMUNITY REHABILITATION

1. Health and Illness; Levels of Healthcare & Fitness

2. Basic Concepts of rehabilitation and foundations of rehabilitation

3. Institute based rehabilitation services and multi-disciplinary approach.

4. Methodology of CBR with reference to National Health Delivery system.

5. Role of National Institutes, District Rehabilitation Centre and Primary Health Centre (with appropriate exposure).


9. Role of Non-Government organizations in CBR.

10. Scope of community physiotherapy.


12. Physical fitness, stress management through yoga and psychosomatic approaches.

13. Home exercise programs for various classifications of disabilities.

14. Physiotherapist as a Master Trainer in CBR.

15. Physiotherapy in maternal and child health care.

16. Evaluation and theories of aging; Assessment of the elderly; Exercise prescription for the elderly; Psychosocial and safety issues in elderly

17. Geriatric Rehabilitation
18. Holistic physiotherapy for the aged.

19. Occupational Health, Occupational Hazards, Industrial Hygiene, Vulnerable workers group and labor law;

20. Industrial therapy, Injury prevention and returning the worker to productivity

21. Ergonomics, Principles, Issues related to hand tools, posture, material handling and lifting

22. Prevention of work related Injuries and redesigning workspace, Designing auditory and visual displays for workers; Occupational stress; Environmental Pollution – nose, vibration etc.

23. Physiotherapy role in industry – preventive, intervention, ergonomic and rehabilitative.

24. Women’s Health : Women’s reproductive health and health care; Exercise prescription in pre and post natal stage;

25. Diagnosis and treatment of musculoskeletal pain and dysfunction during pregnancy and post menopause;

26. Treatment of Incontinence and Pelvic floor dysfunction; Special problems related to women.

27. Recent Advances in Community Physiotherapy.
PAEDIATRICS

1. Normal motor development (development during Prenatal, Infancy, and childhood)

2. Reflex maturation.


5. Genetic basis of paediatric disorders. Embryology & genetic counseling.


8. Clinical symptomatology and patho-physiology of locomotor and cardiopulmonary disorders.

9. Growth and development of a child and its disorders

10. Maturational, Pathophysiological and recovery process in the CNS.

11. Assessment of progressive locomotor disorders – Neuropathic and Myopathic.

12. Early intervention- high risk babies, Neonatal care and management

13. Management of congenital locomotor disorders including the prosthetic and orthotic management.


15. Management of neuro pediatric patients.


17. Disorders of perception and sensory integration.
18. Integrated approach in management of pediatric disorders.
19. Pediatric surgeries and its post-operative management.
22. Sports and fitness in paediatrics.
23. CBR in pediatric conditions.
24. Recent Advances in Pediatric Physiotherapy
RECOMMENDED BOOKS


12. Public Therapy administration & Management – Hickik Robert J.


17. Physical management of Multiple Handicapped – Freser, William & Wilkins, Baltimore.


30. Yoga Therapy – Kuvalayananda Swami and Vinekar, popular prakashan, Bombya, 1992


46. Soft tissue pain and disability – Cailliet Rene, Jaypee Brothers, New Delhi 1992
47. Myofascial pain and dysfunction – Travell, Williams & Wilkins, Baltimore 1983
60. Physiotherapy in obstetrics and gynaecology – Polden & Mantle, Jaypee Brothers, New Delhi 1994

62. Industrial therapy – Key G.L, Mosby, St. Louis 19887

REFERENCE JOURNAL

1. Physical Therapy (APTA, America)
2. Physiotherapy (CSP London)
4. Physiotherapy (Canada)
5. Physiotherapy Theory And Practice.
6. Australian Journal Of Physiotherapy
7. Journal Of Indian Association Of Physiotherapy
8. Clinical Kinesiology
9. Journal Of Biomechanics
15. Archives Of Physical Medicine And Rehabilitation.
18. Clinical Rehabilitation.


20. Gait And Posture