

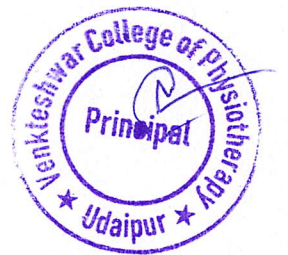


Master of Physiotherapy

Rules-Regulations & Curriculum

(w.e.f. 2021-22)


REGISTRAR
Sai Tirupati University
Udaipur (Raj.)



Venkateshwar College of Physiotherapy

(A Constituent Unit of Sai Tirupati University, Udaipur)

MASTER OF PHYSIOTHERAPY (MPT) COURSE

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PROGRAM TITLE

Master of Physiotherapy (MPT)

COURSE OUTLINE

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 Orthopedic/Musculoskeletal Disorders (MPT-OMS)
2. Master of Physiotherapy in Neurological and Psychosomatic Disorders (MPT-NPD)
3. Master of Physiotherapy in Cardio-Respiratory Disorders (MPT-CRD)
4. Master of Physiotherapy in Sports(MPT-SP.)
5. Master of Physiotherapy in Pediatrics (MPT-Ped.)

GOALS OF COURSE

1. Preparation of a postgraduate student towards his/her professional autonomy with self regulating discipline at par with global standards
2. Formation of base of the professional practice by referral as well as first Contact mode using evidence based practice.
3. Impartation of research basis in order to validate techniques & technology in practice to physiotherapy.
4. Acquainting a student with concept of quality care at the institutional as well as the community levels.
5. Inculcation of appropriate professional relationship in multidisciplinary set up, patient management and co partnership basis.

6. Preparation of students to address problems related to health education and community physiotherapy.
7. Practicing the concept of protection of rights of the community during referral as well as first contact practice.
8. Incorporation of concept of management in physiotherapy.
9. Experience in clinical training and undergraduate teaching partly.
10. Providing the honest, competent and accountable physiotherapy services to the community.

ELIGIBILITY FOR ADMISSION

Candidates who have passed B.Sc. (PT) or BPT degree from institutions where the mode of study is a full time program, with minimum 3½ years / 4 ½ years duration from this university or any other university in India or abroad as equivalent with not less than 50% of marks in aggregate and have completed 6 months of compulsory rotating internship in recognized Physiotherapy Colleges are eligible. Candidates who have passed BPT through correspondence or Distance Education program are not eligible.

OBTAINING ELIGIBILITY CERTIFICATE

No candidate shall be admitted for the postgraduate degree course unless the candidate has obtained and produced the eligibility certificate issued by Geetanjali University, Udaipur. The candidate has to make the application to the university with the following documents along with the prescribed fee.

1. B.P.T. or B.Sc. (PT) provisional / degree certificate issued by the respective university.
2. Marks cards of all the university examinations passed.
3. Completion of internship certificate.
4. Proof of SC/ST or category-I as the case may be.

Candidate should obtain the eligibility certificate before the last date for admission as notified by the university. A candidate who has been admitted to postgraduate course should register his/her name in the university within a month of admission after paying the registration fee.

INTAKE OF STUDENTS

A TOTAL INTAKE OF 50 (10 EACH BRANCH) The intake of students to the course shall be in accordance with the ordinance in this behalf. The guide student ration should be 1:10

DURATION OF THE COURSE

The duration of master of physiotherapy course shall be extended over a period of two continuous years on a full time basis. Any break in the career, power of extension of the course and the fixation of the term shall be vested with the University.

I year: MPT Part-I

0 –12 months

II year: MPT Part-II

13 – 24 months

MEDIUM OF INSTRUCTION

English will be the medium of instruction for the subjects of study and for the examination of the MPT course.

COURSE CONTENT & STRUCTURE

The course subjects will be outlined under two major headings – Core Subjects or Subjects Mandatory for all students and Electives or Subjects of speciality

Subjects	Teaching & Learning methods	Weekly Class hours	Total Hour
Core Subjects- 1.Principles of physiotherapy practice 2.Resarch methodology & bio-statistics 3.Bio-mechanics 4.Exercise Physiology 5.Electrophysiology 6.Physical & functional diagnosis 7.Physiotherapeutics Elective- 1.Orthopedic/Musculoskeletal disorders 2.Neurological & Psychosomatic disorders	Lectures	2	180
	Seminars	2	180
	Practicals & Demonstrations	4	360
	Clinical Discussions	2	180
	Clinical Case Presentations	2	180
	Journal Club	2	180
	Classroom teaching	1	90
	Library	3	270

3. Cardio-Respiratory disorders 4. Sports related disorders 5. Pediatric related disorders	Synopsis ,dissertation & workshops	3	270
	Clinical Training	15	1350
	Total Hours	36	3,240

METHODS OF TRAINING

The training of postgraduate for MPT degree shall be on a full time pattern with graded responsibilities in the management and treatment of patients entrusted to his / her care. The participation of all the students in all facets of educational process is essential. Every candidate should take part in seminars, group discussions, clinical rounds, care demonstrations, clinics, journal review meetings & CME. Every candidate should be required to participate in the teaching and training programs of undergraduate students. Training should include involvement in laboratory experimental work and research studies.

MONITORING PROCESS OF STUDIES (INTERNAL MONITORING)

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring is done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using Checklists that assess various aspects.

WORK DIARY

Every candidate shall maintain a work diary and record his/her participation in the training programmers conducted by the department such as journal reviews, seminars etc. Special mention may be made of the presentations by the candidate as well as details of clinical of laboratory procedures, if any conducted by the candidate. The work diary shall be scrutinized and certified by the Head of the Department and Head of the Institution and presented in the university examination.

PERIODIC TESTS

The College may conduct periodic tests. The test may include written theory papers, practical, viva voce and clinical in the pattern of university examination. Records and marks obtained in such tests will be maintained by the Head of Department and sent to the University, when called for.

ATTENDANCE

A candidate is required to attend a minimum of 80% of training and of the total classes conducted during each academic year of the MPT course. Provided further, leave of any kind shall not be counted as part of academic term without prejudice to minimum 80% of training period every year.

Any student who fails to complete the course in this manner shall not be permitted to appear the University Examinations. A candidate who does not satisfy the requirement of attendance even in one subject or more will not be permitted to appear for University Examination. He / She will be required to make up the deficit in attendance to become eligible to take subsequent examination.

DISSERTATION

Every candidate pursuing MPT 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 dissertation.

The dissertation is aimed to train a graduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis search and review of literature getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions. Every candidate shall submit to the Registrar of university in the prescribed Performa a synopsis containing particulars of proposed dissertation work within 6 months from the date of commencement of the course on or before the dates notified by the university. The synopsis shall be sent through the proper channel. Such synopsis will be reviewed and the university will register the dissertation topic. No change in the dissertation topic or guide shall be made without prior approval of the university.

Guide will be only a facilitator, advisor of the concept and hold responsible in correctly directing the candidate in the methodology and not responsible for the outcome and results.

The dissertation should be written under the following headings.

1. Introduction
2. Aims or objectives of study
3. Review of literature
4. Material and methods
5. Results
6. Discussion
7. Conclusion
8. References


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9. Appendices

The written text of dissertation shall not be less than 50 pages and shall not exceed 100 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 guide, head of the department and head of the institution shall certify the dissertation.

Four copies of dissertation thus prepared shall be submitted to the Registrar (Evaluation), three months before final examination on or before the dates notified by the university.

The examiners appointed by the university shall value the dissertation. Approval of dissertation work is an essential precondition for a candidate to appear in the university examination. The dissertation shall be valued by the evaluator (Examiners) apart from the guide out of which one is external outside the university and one internal from other college of the same university. Any one evaluator acceptance other than the guide will be considered as a precondition for eligibility to take up the examination.

GUIDE

The academic qualification and teaching experience required for recognition by this university is as per the criteria for recognition of MPT teachers for guides.

Criteria for recognition of MPT Teacher / Guide / Examiner

1. M.Sc. (PT) /MPT with five years teaching experience working on a full time position at a recognized institution.
2. The age of guide / teacher shall not exceed 62 years.
3. The guide student ratio should be 1:5
4. Relaxation for the criteria one and two no with standing above in view of acute shortage of teachers, the person having three years post MPT teaching experience working on a full time basis may be considered as P.G teachers. Similarly persons with maximum age of 65 years may be considered for being guide and examiner in cases of acute shortage of examiners until further amendments by the university in this regard. In case of Internal Examiner, further relaxation may be provided by the approval of President (Vice Chancellor).

Change of Guide

In the event of 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.


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SCHEDULE OF EXAMINATION

The University shall conduct examination for MPT course at the end of each year. The examinations shall be known as MPT Part-I Examination and MPT Part-II Examination.

A student shall register for all the papers of a year when he/she appears for the first time.

If a student fails in the first attempt of MPT Part-I Examination, the student may reappear for the supplementary examination which will be conducted within 4-6 months of declaration of results.

If a student fails in the first attempt of MPT Part-I Examination, or the supplementary examination for MPT Part-I thereof, he/she will continue the course with his/her batch. However he/she can register and appear for MPT Part-II Examination only after clearing the MPT Part-I Examination.

If a student fails in the first attempt of MPT Part-II Examination, the student may reappear for the supplementary examination which will be conducted within 4-6 months of declaration of results.

If a student fails in theory and/or practical of MPT Part-I or MPT Part-II Examination, he/she has to appear for all the papers of each examination in both theory and practical respectively

SCHEME OF EXAMINATION

MPT Part-I					
Component	Subject	Written	Practical	Viva	Total
Theory	Paper-I	100	-	-	300
	Paper-II	100	-	-	
	Paper-III	100	-	-	
Practical & Viva-voce	Practical-I	-	50	50	200
	Practical-II	-	50	50	
	Clinical Training	-	-	-	300
GRAND TOTAL					800
MPT Part-II					
Component	Subject	Written	Practical	Viva	Total
Theory	Paper-IV	100	-	-	200
	Paper-V	100	-	-	
Practical & Viva-voce	Practical-III	-	50	50	200
	Practical-IV	-	50	50	
	Clinical Training	-	-	-	400
GRAND TOTAL					800

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.

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.

PAPER	SUBJECTS	MARKS
Paper-I I	1. Principles of Physiotherapy Practice 2. Research Methodology and Biostatistics	100
Paper-II I	3. Biomechanics 4. Exercise Physiology 5. Electrophysiology	100
Paper-III I	6. Physical and Functional Diagnosis	100
Paper-IV II	7. Physiotherapeutics	100
Paper-V II	8. Elective a. Orthopedic/Musculoskeletal Disorders b. Neurological and Psychosomatic Disorders c. Cardio-Respiratory Disorders d. Sports Disorders e. Pediatrics Disorders	100

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.

PATTERN OF MODEL QUESTION PAPER FOR MPT PART-I AND MPT PART-II

MPT Part – I Theory: Maximum Marks: 100 (No choice)

Duration: 3 Hours

1. Long Essay (2 Questions) – $2 \times 20 = 40$ Marks

2. Short Essay (5 Questions) – $6 \times 10 = 60$ Marks

MPT Part-I Practical / Clinical – 100 Marks

Note: All cases for clinical examination should be on patients & not on model.

Day- 1: Practical-I + Practical-II + Viva-voce = 200 Marks

Short case (1) – $1 \times 50 = 50$ Marks

Short case (2) – $1 \times 50 = 50$ Marks

Viva-voce = 100 Marks

Marks Entry: Practical/Clinical = 100

Marks Viva-voce = 100 Marks

Clinical Training= 300 Marks

MPT Part – II Theory: Maximum Marks: 100 (No choice)

Duration: 3 Hours

1. Long Essay (2 Questions) – $2 \times 20 = 40$ Marks

2. Short Essay (5 Questions) – $6 \times 10 = 60$ Marks

Note: In Paper V (Elective) out of the two questions to be attempted in Long Essay, one question must be from Recent Advances – The question will be chosen from Reference Journals as of the elective in the recent five years.

MPT Part-II Practical / Clinical – 200 Marks

Note: All cases for clinical examination should be on patients & not on model.

Day- 1: Practical III = 100 Marks

Elective Long case (1) – $1 \times 50 = 50$ Marks

Viva-voce = 50 Marks

Day- 2: Practical IV = 100 Marks

Short case (1) – $1 \times 50 = 50$ Marks

Viva-voce = 50 Marks

Marks Entry: Practical/Clinical = 100

Marks Viva-voce = 100 Marks

Clinical Training= 400 Marks

EXAMINERS

There shall be 2 examiners. One of them shall be external outside the university and the other shall be internal preferable from the same college or as decided by the university.

CRITERIA FOR DECLARING AS PASS IN UNIVERSITY EXAMINATION

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 Viva-Voce aggregate.

DECLARATION OF CLASS

First class with distinction – 75% & above in aggregate provided the candidate passes the examination in 1st attempt. First class – 60% & above in aggregate provided the candidate pass the examination in 1st attempt. Pass – 50% of maximum marks in theory aggregate and 50% of maximum marks in clinical and Viva-Voce aggregate.

RE-EVALUATION AND RE-TOTALING

Re-evaluation is not permitted in MPT course however student can apply for re-totalling, in maximum 25% subjects, within 15 days of declaration of result to the Controller of Examination of Sai Tirupati University

DESCRIPTIVE COURSE CONTENT

PAPER-I

1) PRINCIPLES OF PHYSIOTHERAPY PRACTICE

Development of Physiotherapy Profession

Ethical issues in practice of physiotherapy-Clinical, Research and Academics, Administration, legislation, rules and regulations governing physiotherapy practice- National & International (WCPT and IAP). Scope of Physiotherapy in Hospital, Community & Industry.

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

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


Declarator

Standardized tests and scales used in various types of cases for assessment and interpretation in Physiotherapy practice.

2) RESEARCH METHODOLOGY AND BIOSTATISTICS

1. Introduction to biostatistics and research methodology.
2. Basic probability and sampling distributions.
3. Processing and analysis of data.
4. Tests of Analysis of variance & co-variance.
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.
9. Validity and reliability evaluation.
10. Format of scientific documents. (Structure of protocols, formats reporting in scientific journals, systematic reviews and Meta analysis)

PAPER-II

1) BIOMECHANICS

1. Biomechanics of Tissues and structures of the musculoskeletal system.
2. Normal and applied Biomechanics of Spine, Upper extremity and Lower extremity.
3. Biomechanics of posture.
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

2) 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.
4. Environmental influence on Performance.
5. Special aids to performance and conditioning.
6. Body consumption, nutrition and caloric balance.
7. Considerations of age and sex in exercise and training.



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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.

3) ELECTRO PHYSIOLOGY

1. Characteristics and components of Electro therapeutic stimulation systems and Electro physiological assessment devices.
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.

PAPER-III

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.
3. Developmental screening, motor learning –motor control assessment.
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.
8. Biophysical measurements, physiotherapy modalities, techniques and approaches.
9. Evaluation of aging.
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.
14. Gait analysis and diagnosis.

PAPER-IV

PHYSIOTHERAPEUTICS

1. Pain (neurobiology, various theories, modulation and management of pain)
2. Maternal and child care in general physiotherapy.
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
14. Principles of Neurological approaches.
15. Facilitation and inhibition techniques.
16. General Guidelines to be followed in Cardiac Rehabilitation, Pulmonary Rehabilitation, Burns Rehabilitation and Cancer Rehabilitation Protocol.
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
 - a) Concept of Yogic Practices – Kinds of Yogic Practices; Asana, Pranayama, Kriya, Mudra, Bandha, Dhyana.
 - 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.
 - d) Meaning & benefits of Bandha – Different Bandhas. Meaning of Mudra – Types of Mudra
 - e) Practicing methods and benefits of Kriyas – Meaning – Types of Kriyas; Neti; Dhauthi.

f) Meaning & concept of Meditation – Yogic practices and physical exercise. Yoga Practices and Other Systems of Exercises – Asanas Vs. Muscular Exercises – Pranayama Vs Deep Breathing Exercises – Importance of Nerve Culture in Yoga - Yoga and Competition –Yoga and Modern Education

PAPER-V

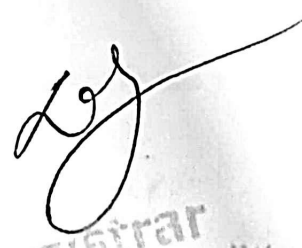
ELECTIVE SUBJECTS

A) ORTHOPEDIC / MUSCULOSKELETAL DISORDERS

COURSE CONTENT

1. Embryological development of musculoskeletal system.
2. Osteology: Structure of bone, ossification of bones, Skull bones, Facial bones, Bones of Upper Extremity, Pelvis, Vertebral Column, ribs.
3. Myology: Structure of muscle, Types of muscle, muscle fibers, Origin, insertion, action, Nerve supply Muscles of Face, Upper Extremity, Lower Extremity, Trunk.
4. Arthrology: Structure of joint, types of joints, detailed structure and formation of all the joints, detailed structure and formation of all the joints, Neurobiology of joint.
5. Neurology: Peripheral Nerves; Peripheral Nerves; Dermatomes and myotomes, Physiology: joint physiology [Movements], muscle physiology. Patho mechanics of Fractures, deformed joints.
- 6) Definitions Causes, Clinical Features, Patho physiology, general investigation {blood test, serum, creatinine, etc.}, Medical and surgical management of the below mentioned conditions:
- 7) Fractures and dislocation- • Upper Limb: Fracture of clavicle, scapula, humerus, forearm bones, carpal bones, metacarpal bones, and phalanx. Shoulder dislocation, elbow dislocation, dislocation of radius, dislocation of radio-ulnar joint, dislocation of carpo metacarpal joint of thumb • Lower Limb: Fracture of Pelvis, femur, patella, tibia, fibula, tarsal bones, metatarsal, and phalanx. Dislocation of hip, patella, knee, ankle, sub-talar joint • spine: Fractures and dislocation sub- luxation of vertebra • skull Bones and Ribs. (With emphasis made to Post traumatic complications & preventive Measures). Amputation.
- 8) Sprains and Strains: Injuries of soft tissue of body.
- 9) Disease of joints: • Infective, Rheumatoid, Degenerative, Neuropathic. Metabolic, Arthritis in systemic disorders, Miscellaneous, Periarthritis, juvenile rheumatoid arthritis.
- 10) Deformities; of Upper limb, lower limb and spine.
- 11) Plexus and peripheral nerve injuries.
- 12) Arthropathies: Spondylitis Spondylolisthesis, spondylosis, Ankylosing Spondylitis.
- 13) Metabolic diseases of bones: Osteopenia, Rickets, Osteomalacia. Osteoporosis.
- 14) Tumors of bones and joints.

- 15) Infectious disorders of bones and joints.
- 16) Congenital disorders.
- 17) Developmental disorders bones.
- 18) Bony Abnormalities secondary to endocrine disorders.
- 19) Avascular necrosis of bone and epiphyseal osteochondritis.
- 20) Disorders of bone & joint secondary to neurological conditions like: • Cerebral palsy, anterior poliomyelitis, Leprosy, Spinal cord injuries,.
- 21) Disorders of bone & joint secondary to neurological conditions like • Cerebral palsy, anterior poliomyelitis, Leprosy, spinal cord injuries.
- 22) Disorders of bone & joint secondary to Muscular Dystrophies • Arthrogryposis Multiplex congenital. Fibrodysplasia progressiva.
- 23) Regional conditions of neck and upper limb: • Brachial neuralgia, cervical rib, Thoracic outlet syndrome, Torticollis, Supraspinatus Syndromes, Rupture of rotator cuff, Deltoid fibrosis, Tennis Elbow, Ganglion, DeQuervain's disease, Trigger finger, Trigger thumb, Carpal tunnel syndrome. Dupuytren's contracture.
- 24) Regional Conditions of Lower limb & Spine: • Backache, Lumbo sacral strain, Fibrositis Back, Sacralisation of 5th lumbar vertebra. IVAP. Lumbar canal stenosis, Epiphyseolysis. Idiopathic chondrolysis of hip. Quadriceps fibrosis, Bursitis around the knee, Loose bodies in the knee, Chondromalacia patella, planter fasciitis, Calcaneal spur, Osgood Schlatter disease, Tarsal tunnel syndrome.
- 25) Miscellaneous: • Perthes disease, Paget's disease, Connective tissue disorders (SLE. Polymyositis, dermatomyositis, polyarteritis nodosa).
- 26) Bone, skin grafting/tendon transfer procedures: • The student should know the latest advances in orthopedic surgical procedures.
- 27) Sports injuries: • Classification of sports injuries, bio mechanics of common sports injuries, head injuries in sports, running injuries, swimming injuries, facial injuries, neck pain, shoulder pain, elbow pain, forearm pain, wrist pain and other regional condition that is related to sports and common sports related infections etc.
- 28) Geriatric condition: • Theories of aging, physiological changes of musculoskeletal changes in aging, aging of nervous system and other pathological manifestations of aging, etc.
- 29) Chronic pain: • Historical perspective, theories of pain, and classification of pain, clinical manifestations, etc.
- 30) Surgical procedure: • Describe the following surgical procedures: osteotomy, arthrodesis, arthroplasty, etc.
- 31) Hand injuries: • Flexor tendon injuries, extensor tendon injuries, nerve compression syndromes, nerve injuries, cumulative trauma, traumatic injuries to hand, reflex sympathetic dystrophy, rheumatoid hand, evolution of thumb, and other regional hand conditions etc.
- 32) Orthopaedics problem in paediatric patients: • clavicular fracture, humeral fracture, supracondylar fracture, nursemaid's elbow, Hip fracture, tibial fracture, ankle fracture, and other regional condition that is related to paediatric cases.
- 33) Miscellaneous condition: • Myofascial trigger point (definitions, types, pathophysiology, clinical features etc.)



B) NEUROLOGICAL AND PSYCHOSOMATIC DISORDERS

COURSE CONTENT

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.
6. Various Evaluation Scales and Assessment methods used in neurological rehabilitation.
7. Electrodiagnosis:
 - a. Neurophysiology of Nerve conduction studies and Electromyography.
 - b. Instrumentation of Electrical stimulator, EMG, SFEMG, NCS (Nerve Conduction Studies).
 - c. Electrical study of reflexes (H- reflex, Axon reflex, F- response, Blink reflex, Jaw jerk, Tonic Vibration Reflex).
 - 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
9. Neuro-psychological functions. Perception testing and 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 cutaneous disorders
20. Diseases of spinal cord, peripheral nerves and cranial nerves
21. Physiotherapy management for neuromuscular disorders.
22. Paediatric neurology (Cerebral Palsy, Developmental disorders, Neuropsychiatric disorders, Cerebral & Craniovertebral anomalies & metabolic disorders of nervous system).
23. Cognitive disorders and its rehabilitation.
24. Oromotor rehabilitation.
25. Vestibular disorders and its rehabilitation.
26. Bladder and Bowel dysfunction and its rehabilitation.
27. Assessment and management of various neurological gaits.
28. Rehabilitation following disorders of Special Senses, Speech. Language and Perception.
29. Associated functional disturbances of higher functions and their testing and training.
30. Application of Functional electrical stimulation and Bio-feedback in neurological rehabilitation.
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.

C) CARDIO-RESPIRATORY DISORDERS

COURSE CONTENT

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,
6. Evaluation of respiratory dysfunctions, lung function tests – volumetric, analysis of blood gases, X-ray chest.

- 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.
 9. A.N.S dysfunction testing.
 10. Risk factors and preventive measures in cardio respiratory conditions
 11. Cardio-respiratory emergencies and management principles – medication, critical care, indications of surgical intervention, stabilization of vital functions defibrillation.
 12. Intensive care unit – Concept and set-up, equipment for advanced methods of resuscitation, monitoring and patent management: artificial airways, ventilators, pulse –oxymetry etc
 13. Oxygen therapy.
 14. Cardio-pulmonary resuscitation.
 15. Respiratory physiotherapy techniques – Techniques to improve lung volume; techniques to reduce the work of breathing and techniques to clear secretions.
 16. Physiotherapy management for common conditions in the ICU
 17. Poisoning, Drug overdose, and Drowning.
 18. Physiotherapy management following general Medical & Surgical conditions
 19. Physiotherapy management of peripheral vascular disorders
 20. Exercise testing, planning and prescription: aerobic and anaerobic exercise training.
 21. Respiratory Pharmacology
 22. Physiotherapy management in Obstructive and restrictive lung disorders
 23. Pulmonary Rehabilitation
 24. Physiotherapy management following congenital and acquired heart diseases
 25. Cardiac rehabilitation – Conservative and post-operative management.
 26. Physiotherapy modalities used for wound healing
 27. Exercise Prescription for health promotion and fitness for special populations- DM, Obesity, IHD, COPD, HTN
 28. C.B.R in Cardio-vascular and respiratory conditions.
 29. Recent advances in Cardio respiratory physiotherapy.

ELECTIVE SUBJECT

D) SPORTS DISORDERS

COURSE CONTENT

1. Psychological factors of sports injuries
2. Physiological factors of sports injuries – Type of injuries, Reaction to injury, Response of joint structures to injury, Effect of immobilization, effects of remobilization, Inflammatory and healing process, micro trauma, stress reactions
3. Rules & regulations of sports, sport specific injuries, Patho mechanics of sport injuries Physical demand in different sports, Flexibility exercises.
4. Physiological effects of stretching & mobilizations prior to the participation in sports.
5. Types of exercises and their physiological effects related to sports. Biomechanics of sports and its relationship to joint injuries, Uses & application of biomechanics different sport events (like throwing mechanics, running mechanics, swimming mechanics)
6. Aquatic: Physical properties of water, Physiologic effects of water immersion and its therapeutic value
7. Epiphyseal injuries- Classification, complications and prognosis of epiphyseal injuries, Osgood Schlatter disease, traction epiphysitis, tendinitis at the insertion of patellar tendon, complete avulsion of the epiphysis of the tibial tubercle, shoulder, Contributing risk factors- intrinsic factors, and extrinsic factors
8. Shoulder Girdle injuries – Injuries to the sternoclavicular joint – sprains, dislocations, Scapulothoracic joint lesions, acromioclavicular joint sprains, anterior dislocation of glenohumeral joint, recurrent anterior dislocation of the shoulder, posterior dislocation of shoulder, thoracic outlet syndrome. Painful are, Rotator cuff injuries, Impingement syndromes, Glenoid Labrum lesions
9. Elbow joint Injuries- Olecranon bursitis, Vague's extension overload, elbow, Ulnar nerve lesions, Ulnar & Radial collateral ligament sprains, Contusions and strains, Dislocations, Osteochondritis dissecans, Little Leaguers elbow, problems resulting from throwing – medial lesions, lateral lesions posterior lesions. Epicondylitis- Incidence, pathology, and mechanism of injury.
10. Wrist and hand Injuries- Colle's fracture, scaphoid fracture, Gamekeeper's Thumb, DIP joint fracture & dislocation, Jersey finger, Boutonniere deformity, pseudo boutonniere deformity, fractures of the metacarpals,

Bennett's fracture, mallet finger, Dequervain's tenosynovitis of the thumb, Bowler's, thumb, handler palsy, Hamate fracture, Ganglion cysts, Trigger finger: Carpal tunnel syndrome.

11. Thigh Injuries- Contusion to the quadriceps, strain of the quadriceps musculature, acute strain of the hamstring group, complete rupture of the patellar tendon.

12. Knee Injuries- Knee ligament injuries first- degree sprain, second-degree sprain, Third degree sprain, Anterior and posterior cruciate tears, anteriolateral instability meniscal-lesion, Articular cartilage lesions, Patello femoral dysfunction.

Injuries of the patella – Patella fracture- acute-dislocation, recurrent dislocation, subluxation and spontaneous reduction of a dislocated patella, Osteochondritis dissecans, Jumper's knee.

13. Injuries to lower leg, ankle and foot- Tibiofibular synostosis, Rupture of the gastrocnemius, tennis leg, total rupture of the Achilles tendon, partial rupture of the Achilles tendon, Tendinopathies-Achilles tendonitis, Anterior tibialis tendonitis, Peroneal tendinitis. Posterior tibialis tendonitis, Flexor hallucis longus tendinitis, Flexor digitorum longus tendinitis. Compartmental compression syndromes, Heel bruise, Os trigonum injury, Calcaneal apophysitis, Tarsometatarsal injuries. Tarsal tunnel syndrome, Cuboids syndrome, Metatarsal stress fracture, Interdigital neuroma, Stair Climbers transient paresthesia, Turf toe, sesamoiditis. Injuries to the Ankle- Syndesmotic ankle sprain, Inversion sprains. eversion sprains, dorsiflexion sprains, tarsal tunnel syndrome, stress fracture of the metatarsal, Morton's neuromas, corns and calluses, blisters, ingrown toenails, peroneal tendon subluxation.

14. Injuries to the low back – Postural syndrome, Dysfunction syndrome, Derangement syndrome, spondylolisthesis.

15. Injuries to the Running Athlete- Causes of overuse injuries- Common running induced injuries to the lower back- common running induced injuries to the hip-Iliotibial tract pain. Trochanteric bursitis, stress fracture of femoral neck. Slipped capital femoral epiphysis, vague hip pain.

16. Swimming Injuries- "Swimmers Shoulder" anterior subluxation of the Glenohumeral Joint, breast stroke's injury.

17. Assessment of sports related injuries

18. Recent advancements in sports injuries & physiotherapeutic interventions

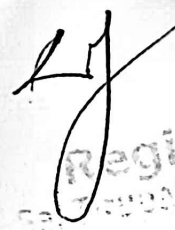
E) PAEDIATRICS DISORDERS

COURSE CONTENT

1. Normal motor development (development during Prenatal, Infancy, and child hood)
2. Reflex maturation.
3. Developmental assessment and diagnosis.
4. Developmental screening using various scales.
5. Genetic basis of pediatric disorders. Embryology & genetic counseling
6. Cardio-respiratory assessment of neonate and infant and related pediatric disorder.
7. Principles of laboratory investigations for differential diagnosis.
8. Clinical symptomatology and patho-physiology of locomotor and cardiopulmonary disorders.
9. Growth and development of a child and its disorders
10. Maturation, 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.
14. Analysis of fitness and exercise prescription for special pediatric populations – cerebral palsy, downs syndrome, polio, muscular dystrophy, juvenile diabetes and obesity.
15. Management of neuro pediatric patients.
16. Motor learning process – Theory and Techniques.
17. Disorders of perception and sensory integration.
18. Integrated approach in management of pediatric disorders.
19. Pediatric surgeries and its post-operative management.
20. Adaptive equipment for physically challenged children.
21. Physical therapy in public schools.
22. Sports and fitness in pediatrics.
23. CBR in pediatric conditions.
24. Recent Advances in Pediatric Physiotherapy

RECOMMENDED BOOKS

1. Scientific basis of human movement – Gowitzke, Willams and Wilkins, Baltimore, 1988 3rd edition.
2. Clinical biomechanics of spine – White A,A and Panjabi-J.B Lippincot, Philadelphia 1978.
3. Kinesiology – Brunnstrom Singe, F.A. Davis- Philadelphia – 1966


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4. Text book of work physiotherapy – Guyton, Prim Books Bangalore-1991 8th edition
5. Hand book of physiology in Aging- Masoro, C.R.C Press, 1981
6. Research for physiotherapists- Hicks C., Churchill Living stone, Edingburgh 1995 Ed.\$
7. Introduction to Research in Health Sciences-Polgar S, Churchill Livingstone, London, 1988.
8. Elements of Research in physical Therapy- Currier D.P, Willams & Wilkins, Baltimore, 1990 Ed.3
9. Hand book of Research Method – Sproull, Screcrow Press, 1998.
10. Physical therapy Research- Domholdt, W.B Saunders, Philadelphia. 1993
11. Public power & Administration – Wilenski, Hale & Iremonger, 1998.
12. Public Therapy administration & Management – Hickik Robert J.
13. Management Principles for physiotherapists – Nosse Lorry J.
14. Human neuroanatomy – Carpenter M.B, Williams & Wilkins, Baltimore, 1983
15. Physical therapy Assessment in Early Infancy –Wilhelm Churchill Liningstone, New York, 1993
16. Physical therapy for children – Campbell Suzann K, W.B Saunders, Philadelphia 1994
17. Physical management of Multiple Handicapped – Freser, William & Wilkins, Baltimore.
18. Elements of paediatric physiotherapy- Eckerley P, Churchill Liningstone, Edingburgh, 1993
19. Physiotherapy in pediatrics – Shepherd R. Heinmann, London, 1980 2nd edition
20. The Growth chart – WHO, Geneva, 1986
21. Orthotics in neurological rehabilitation – Aisen, Demos Publication, New York 1992
22. Manual of nerve condition velocity techniques – De Lisa, Raven press, New York, 1982
23. Electrodiagnosis in diseases of nerve and muscle – Kimura J, F.A Davis, Philadelphia.
24. Mobilization of the extremity joints – Kaltenbore, Harper and Row, Philadelphia.1980
25. Chest physiotherapy in Intensive care unit – Makezie, Willams & Wilkins, Baltimore.
26. Cardiopulmonary symptoms in physiotherapy –Cohen M, Churchil, Livingstone, London-1988.
27. Physical rehabilitation: assessment and treatment – O’Sullivan, F.A Davis, Philadelphia 1994.
28. Neuro-rehabilitation – Farber, W.B Saunders, Philadelphia 1982
29. Orthopaedic physical therapy- Donatteli, London Churchill Livingstone, 1994.
30. Yoga Therapy – Kuvalayananda Swami and Vinekar, popular prakashan, Bombya, 1992
31. Gaits analysis – Perry J., Black Thorofare, New Jersy, 1992
32. Bio – feedback- A practitioners guide - Kerb D, Guiford press.
33. The neural basis of motor control – Black I, Churchill Livingstone, London-1987
34. Physical therapy management of Parkinson’s disease – Turnbull Gerode , Churchill, Livingstone, London-1994

35. Abnormal postural reflex activity caused by Brain lesions – Bobath b. Aspen publications, Rockville, 1897.
36. Disorders of voluntary muscle- Eigel, Churchill, Livingstone, Edingburgh 1988.
37. A Clinician's view of neuro muscle disorder – Brook M.H Williams and Wilkins, Baltimore 1986.
38. Proprioception, neuro muscular facilitation techniques – Knot M. and Voss, Harper and Row, New York 1972 2nd edition.
39. Stroke rehabilitation – Laidler, Capman and Hall, London 1994.
40. Motor relearning programme for stroke – Carr, Aspen publication, Rock ville, 1987.
41. Adult hemiplegia: evaluation and treatment – Bobath B, Heinmann, London 1988.
42. Paraplegia and tetraplegia – Brombley, Churchill, Livingstone, Edingburgh 1991
43. Child with spina Bifida – Anderson E.M. and Spain B., Methun, London 1977.
44. A manual of neonatal intensive care – Robert N.R.C, Edward Arnold, London 1986
45. Measurement in physical therapy – Churchill, Livingstone, London 1988.
46. Soft tissue pain and disability – Cailliet Rene, Jaypee Brothers, New Delhi 1992
47. Myofascial pain and dysfunction – Travell, Willams & wilkins, Baltimore 1983
48. Physical therapy of the low back – Twomey, Churchill, Livingstone, London 1983
49. Sport injuries of the shoulder – Souza Thomas A., Churchill, Livingstone, London 1994
50. Vertebral manipulation – Matiland G.D, Boston, Butterworth & Co. Boston, 1997.
51. Peripheral manipulation - Matiland G.D, Boston, Butterworth & Co. Boston, 1997.
52. Sports and physical therapy – Bernhardt Donna, Churchill, Livingstone, London 1995
53. Hand rehabilitation – Christine- Churchill, Livingstone, London 1995
54. Cardiopulmonary symptoms in physiotherapy practice – Cohen M., Churchill, Livingstone, London 1988
55. Clinical application of ventilatory support – Kinby Churchill, Livingstone, New York 1990
56. Cardiopulmonary Physiotherapy – Irwin, C.V., Mosby, St. Louis 1990.
57. Pulmonary rehabilitation: guidelines to success – Hoidkins, Butterworth, Boston, 1984.
58. Cardiac rehabilitation – Amundsen I.R, Churchill, Livingstone, London 1988
59. Obstetrics and gynaecologic physical therapy – Wilder Elnine, Churchill, Livingstone, New York 1994
60. Physiotherapy in obstetrics and gynaecology – Polden & Mantle, Jaypee Brothers, New Delhi 1994
61. Physical therapy of the cancer patient – McGaryex charles Churchill, Livingstone, New York 1989.
62. Industrial therapy – Key G.L, Mosby, St. Louis 19887.

REFERENCE JOURNAL

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1. Physical Therapy (APTA, America)
2. Physiotherapy (CSP London)
3. American Journal of Physical Medicine and Rehabilitation.
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
10. American Journal of Sports Exercises.
11. Pediatric Physical Therapy.
12. Journal of Neurological Physical Therapy.
13. Journal of Rehabilitation Research and Development.
14. Journal of Cardio Pulmonary Rehabilitation.
14. Archives of Physical Medicine and Rehabilitation.
15. Journal of Pediatric Orthopedics.
16. Journal of Neurological Sciences.
17. Clinical Rehabilitation.
18. Spine.
19. Manual Therapy.
20. Gait and Posture.

APPENDIX

GRADED RESPONSIBILITY IN CARE OF PATIENTS AND OPERATIVE WORK (Structured Training Schedule of clinical & elective subjects only).

Category	I year MPT	II year MPT
O	20 Cases	20 Cases
A	20 Cases	30 Cases
PA	100 Cases	60 Cases
PI	20 Cases	50 Cases

Key: 'A

A

PA – Performed procedure under the direct supervision of a senior specialist.

PI – Performed Independently

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