



PONDICHERY UNIVERSITY
Puducherry – 605 014.

MASTER OF PHYSIOTHERAPY [M.P.T.]
DEGREE COURSE

SYLLABUS AND REGULATIONS

2007 -08 ONWARDS

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AIMS & OBJECTIVES OF THE COURSE

Master of Physiotherapy [M.P.T.]

Aims:

The course aims to prepare the candidate towards professional excellence in specialised skills in the respective field of Physiotherapy. The course is conducted with the prime intention to acquaint the candidate with research methods, concept of quality care, to promote the standards of Physiotherapy education and to induce appropriate professional relationships in multidisciplinary hospitals & rehabilitation practice. It also aims to inculcate competent standards in clinical practice and research.

Objectives:

The candidate undergoing this course shall:

1. acquire a sound knowledge of the specialised skills of the physiotherapeutic interventions with special emphasis on the respective areas of specialisation.
2. have an updated evidence based practice, which includes evaluation, clinical reasoning, diagnosis and treatment methods.
3. practice within the professional code of ethics and conduct, and the standards of practice within legal boundaries.
4. gain experience in clinical teaching methods and undergraduate tutorials.
5. conduct research activities and utilise findings for professional development.

REGULATIONS

ELIGIBILITY FOR ADMISSION

1. Every candidate for admission to the course for the degree of Master of Physiotherapy [M.P.T.] must have been qualified with the degree of Bachelor of Physiotherapy [B.P.T.] of Pondicherry University or the degree of any other University recognised as equivalent thereto by the Pondicherry University; such candidates should submit a migration certificate to the Pondicherry University.
2. Candidates should have obtained a minimum of 55% of aggregate marks in the Bachelor degree course of minimum duration of three years of study along with six months of compulsory rotatory internship.
3. Every candidate before admission to this course shall submit to the Head of the Institution a Medical Fitness Certificate, from the Government Headquarters Hospital that the candidate is physically fit to undergo M.P.T. course and does not suffer from any contagious disease. Differently abled (disabled) students should submit a certificate for the same.
4. Selection of the candidates should be based on the merit list drawn by the competent authority.

REGISTRATION

A candidate admitted in the Master of Physiotherapy course shall register with the University by duly filling the application, which will be forwarded to the University through the Head of the Institution within the prescribed date.

DURATION OF THE COURSE

The course of study and training for the degree of Master of Physiotherapy (M.P.T.) course shall be full-time and its duration shall be of two academic years; an academic year shall consist of not less than 200 working days.

MEDIUM OF INSTRUCTION

The medium of instruction for all the subjects of study and for the examinations of the course shall be English.

CURRICULUM

The curriculum and the syllabi for the course are as presented and are subject to modifications based upon the recommendations of the Postgraduate Board of Studies in Paramedical Sciences duly approved by the Academic Council of the Pondicherry University.

REQUIREMENTS FOR ADMISSION TO EXAMINATIONS

A candidate is required to put up a minimum of 80% of total attendance in each subject separately and in clinical before admission to the University examinations for the degree of Master of Physiotherapy. There shall be no condonation of attendance for this course.

INTERNAL ASSESSMENT

The following procedure shall be used for the assessment of Internal Marks for this course.

(a) Students' log book	- 30 marks
(b) Tests (Theory & Clinical)	- 20 marks
(c) Seminars & Teaching practice	- 20 marks
(d) Assignments, journal reviews & case presentation	- 20 marks
(e) Attendance	- 10 marks
Total	-100 marks

*[95% or over =**10**; 90-95% = **9**; 85-90% =**8**; 80-85% =**7**]

A candidate should obtain minimum 50% of the internal marks.

MAINTENANCE OF LOG BOOK

Every candidate shall maintain a log book, consisting of the details of skills acquired during the clinical training period, participation in seminars, workshops & conferences, undergraduate teaching practice, journal article reviews, group discussions, assignments and such other academic activities which will be evaluated periodically. At the end of the course the candidate should submit the log book, duly certified by the concerned Head of the Department, and countersigned by the Principal.

DISSERTATION

Every candidate appearing for the examination in the first instance shall submit four copies of a dissertation, consisting of results of the candidates' study

carried out under the guidance of a recognised post graduate teacher and duly certified by the guide & Principal of the College, three months before the end of the course/beginning of the examination.

A post graduate teacher in the respective specialty, not exceeding 62 years of age, with 5 years of teaching experience after MPT working on full time position in a recognized physiotherapy institution shall be the recognized guide for the dissertation. However, if the institute does not have PG teachers with 5 years of teaching experience may permit similar teachers with 2 years teaching experience after PG, for the purpose of guidance & certification of dissertation and as the internal examiner.

In order to qualify for the degree, the dissertation has to be approved by at least 50% of the examiners, of whom at least one shall be an external examiner. No marks will be allotted for dissertation and it shall be mentioned either as “Approved” or “Not Approved” with written valid reasons, by the concerned dissertation examiner. A candidate whose dissertation is not approved will have to resubmit it after effecting the modifications suggested by the examiners. This has to be done at least three months before a later examination. A candidate whose dissertation has been accepted by the examiners will not be required to submit a fresh dissertation if he has to reappear for the examination in the same branch.

EXAMINATIONS

The University examinations for the degree of M.P.T. shall be held as follows:

- Theory examinations will be held at the end of first year and second year.
- The practical examinations will be held only at the end of the second year. The practical will cover the respective specialty and viva-voce will cover the scope of MPT syllabus. Practical examination will be clinical; and the candidate’s knowledge in evaluation of cases, discretion and specificity of treatment procedures, performance of various techniques, ability to use equipment, familiarity with recent advances in the field shall be tested.
- The first year examinations will be common to all specialties of the MPT course, and, the second year examinations (both theory & practical) will be held separately for each specialty.
- The annual examinations shall be conducted in June/July every year and the supplementary examinations in November/December every year.
- The details of examinations are enlisted in the scheme of examinations.

NUMBER OF APPEARANCES

The candidate will not be permitted to appear for more than five attempts in the examinations and shall be discharged from the course if he / she fails to pass the examinations in the said number of attempts, or four years from the date of admission to the course, whichever is earlier.

PANEL OF EXAMINERS

A post graduate teacher in the respective specialty, not exceeding 62 years of age, with minimum 5 years of teaching experience after MPT, working on full time position in a recognized physiotherapy institution shall be the recognized guide, evaluator for the dissertation, question paper setter, theory paper evaluator, and practical examiner.

PROCEDURE FOR PASSING THE COURSE

A candidate must obtain minimum 50% of the maximum marks in each theory paper separately, and 50% of maximum marks in practical & viva-voce. Internal assessment marks will be added to the Part-A Theory examinations every year. Thus this part, in every year, will contain a total of 300 marks out of which a minimum of 150 marks is required for a pass in the examinations. The candidate must secure a minimum of 200 marks out of the 400 marks in Part-B Practical & Viva-voce examinations separately. The dissertation, Part- C, has to be “Approved” by the external evaluator.

DECLARATION OF CLASS

A candidate who obtains 50% or more, but less than 60% marks in the aggregate (Part–A & B) will be declared to have passed the examination in the second class, and one who obtains 60% or more marks in the aggregate will be declared to have passed the examinations in First Class. A candidate will be declared to have passed in First Class with Distinction if the candidate has obtained 75% or more in the aggregate.

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COURSE OF STUDY

FIRST YEAR		
Sl. No.	Subjects	Total hours
1.	Applied Anatomy	60
2.	Biomechanics & Kinesiology	60
3.	Exercise Physiology	80
4.	Research Methodology	60
5.	Biostatistics	40
6.	Education Technology	60
7.	Management	40
8.	Psychology	20
9.	Yoga & Physiotherapy	40
10.	Physiotherapy Ethics	20
11.	Clinical posting	500
12.	Community posting	300
13.	Co-curricular activities*	160
Total		1440 hours

SECOND YEAR		
Sl. No.	Subjects	Total hours
1.	Recent Advances in Physiotherapy	200
2.	Specialty in Physiotherapy #	300
3.	Clinical posting	800
4.	Co-curricular activities*	140
Total		1440 hours

[Orthopaedic /Neurological /Cardio-respiratory Physiotherapy]

*** Participation in Seminars, Workshops & Conferences, exclusive of parent institution and observational visits.**

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SCHEME OF EXAMINATIONS

Part – A THEORY EXAMINATIONS:

FIRST YEAR					
Paper	Title of the paper	Contents	Total marks	Passing minimum	Total duration
I	Basic Sciences	Applied Anatomy, Biomechanics & Kinesiology, Exercise Physiology.	100	50	3 hours
II	Allied Sciences	Research Methodology & Biostatistics, Education Technology, Management.	100	50	3 hours
Internal assessment marks			100	50	
Total marks			300	150	
SECOND YEAR					
III	Recent Advances in Physiotherapy		100	50	3 hours
IV	Specialty in Physiotherapy		100	50	3 hours
Internal Assessment Marks			100	50	
Total marks			300	150	

Part – B PRACTICAL & VIVA-VOCE EXAMINATIONS: [II year only] [Duration – 3 hours / candidate]

1. One Long Case from specialty (1 hour) - 150 marks
2. Three Short Cases/Tasks (1 hour) - 150 marks
3. Five Spotters (30 minutes) - 50 marks
4. Viva-voce (30 minutes) - 50 marks

Total marks: 400 marks

Part – C DISSERTATION

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PATTERN OF QUESTION PAPER

**M.P.T. Degree Examinations
(PAPER No. - PAPER TITLE)**

Maximum Marks: 100

Duration: 3 hours

Section – A (Duration- 20 minutes; Max. 20 marks)

1. Multiple Choice Questions (20 x 1mark) = 20 marks

Section – B (Duration- 2 Hours & 40 minutes; Max. 80 marks)

1. Long Questions (3 x 10marks) = 30 marks
2. Short Questions (10 x 5marks) = 50 marks

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Marks distribution for subjects

Paper - I	Applied Anatomy	- 30 marks
	Biomechanics & Kinesiology	- 30 marks
	Exercise Physiology	- 40 marks
Paper - II	Research Methodology & Biostatistics	- 40 marks
	Education Technology	- 40 marks
	Management	- 20 marks.
Paper - III	Recent Advances in Physiotherapy	- 100 marks
Paper - IV	Specialty in Physiotherapy	- 100 marks

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SYLLABUS

A detailed syllabus of the subjects to be covered during the M.P.T. programme is given below. However, this is not exhaustive and a candidate is advised to use this as a guideline to further update his/her knowledge and skills in the field of Physiotherapy.

The instructional courses in Basic Medical Sciences are intended as a revision and updating of the topics essential for physical therapy practice. A brief outline of the topics to be covered in these subjects is as follows.

APPLIED ANATOMY

60 Hours

Revision and lectures in anatomy are intended to strengthen the basic knowledge as applied to the practice of Physiotherapy. The lectures will cover applied anatomy in relation to joint function, myology, cardio-respiratory anatomy and neuro anatomy. The course in Anatomy will be concentrated on applied anatomy of the following:

1. Arthrology

Joint structure and functions of all the joints with emphasis on the Hip, Knee, Ankle and foot complexes, shoulder, elbow, radioulnar, wrist and small joints of the hand. Structure of the thoracic cage, temporomandibular joint, atlanto occipital & atlanto axial joints and pelvis.

2. Myology

Origin, insertion, actions and nerve supply of muscles with dermatome charting of upper extremity & lower extremity, muscles of facial expression, neck, spine, abdomen, and pelvis.

3. Thorax

Thoracic wall and contents of mediastinum, heart and great vessels, respiratory system – upper and lower respiratory tract, bronchopulmonary segments and applied anatomy of lungs and pleura.

4. Neuroanatomy

Evolution and development of nervous system, neurons and neuralgia, receptors and endplates. Meninges of brain, dural venous sinuses, brain and spinal cord applied anatomy. Cranial nerves and tracts.

Suggested references:

1. Williams PL; Gray's Anatomy; Lippincott W & W, Philadelphia, 1996.
2. Netter's Concise Atlas of Orthopaedic Anatomy
3. Snell RS; Clinical Neuroanatomy; Lippincott W & W, Philadelphia, 2006.
4. Moore & Dalley; Clinically Oriented Anatomy; Lippincott W&W, Philadelphia, 1996.
5. Sinnathamby CS; Last's Anatomy; Churchill Livingstone, Edinburgh; 1999.

BIOMECHANICS & KINESIOLOGY**60 Hours**

Revision in basic biomechanics and kinesiology are intended to strengthen the basic knowledge as applied to the practice of Physiotherapy.

1. Applied Biomechanics in structure and function of joints.
2. Arthrokinematics and Osteokinematics of musculoskeletal system.
3. Biomechanics of articular cartilages, tendons and ligaments.
4. Biomechanics & Kinesiology of shoulder girdle, shoulder joint, elbow joint, forearm, wrist and hand.
5. Biomechanics & Kinesiology of Temporomandibular joint.
6. Biomechanics & Kinesiology of neck and trunk.
7. Biomechanics & Kinesiology of pelvic girdle, hip, knee complex, ankle & foot.
8. Biomechanics & Kinesiology of posture and gait.
9. Ergonomics & application in work environment.
10. Factors determining strength, endurance, speed training, co-ordination.

Suggested references:

1. Lippert LS; Clinical Kinesiology and Anatomy; Jaypee brothers, New Delhi; 2007.
2. Levangie PK, Norkin CC; Joint Structure & Function- A Comprehensive Analysis; Jaypee brothers, New Delhi; 2006.
3. Kapandji IA; The Physiology of Joints; Churchill Livingstone, Edinburgh;1998.
4. Nigg MB, Herzog W; Biomechanics of the Musculoskeletal System; Wiley; 2007.
5. Smith LK *et al*; Brunnstrom's Clinical Kinesiology; Jaypee brothers, New Delhi; 1998.

EXERCISE PHYSIOLOGY**80 Hours**

1. Muscle: Architecture, contraction, sliding filament theory, types of muscle fibers, mechanical efficiency of muscle contractions, motor unit, muscle fatigue, blood supply during prolonged exercise.
2. Cardiac cycle – circulation changes during exercise, cardiac output & Oxygen uptake during exercise. Lung compliance, airway resistance, ventilation and perfusion at rest & during exercise, regulation of breathing in exercise.
3. Aerobic process: intensity and duration of exercise, prolonged exercise and muscular stress involved in exercise.
4. Anaerobic process: power and capacity of high energy breakdown.
5. Lactate production, distribution & loss. Effect of metabolism in tissue & blood.
5. Training principles, continuous vs. intermittent training methods and biological long term effects of training, isometric strength training, dynamic strength training, aerobic training, endurance training, retraining, recovery after exercise, efficient mechanical technique, body composition, stretching, psychological aspects, muscular soreness, contra indications to physical training.
6. Applied work Physiology: Factors affecting sustained physical work, assessment of work loads in relation to work capacity. Assessment of maximal aerobic power, measurement of oxygen uptake in a typical work situation, classification of work, daily rates of energy expenditure, energy expenditure during specific activities like sleeping, sedentary work, house work, light industry, manual labour.
8. Fatigue: General physical fatigue, local muscular fatigue, causes and precautionary methods of fatigue during exercise performance
9. Nutrition and physical performance: Nutrition in general digestion, energy metabolism and factors governing the selection of food for muscular exercises, food for the athlete, energy balance, regulation of food intake, ideal body weight, obesity, slimming diets, optimal supply of nutrients.
10. Factors affecting performance: High altitude limiting factors, oxygen transport, adaptation of high altitude, high gas pressure, pressure effects, nitrogen, oxygen, carbon dioxide metabolism in sports, tobacco smoking – circulatory effects, respiratory effects, metabolic effects, smoking habits among athletes, alcohol and exercise, neuromuscular function, aerobic and anaerobic power, metabolic effects, caffeine and Doping.

Suggested references:

1. McArdle DW, Katch FI & Katch VL; Exercise Physiology, Energy, Nutrition & Human Performance; Lippincott W&W, Philadelphia, 2007.
2. Brown PS, Miller CW, Eason MJ; Basis of Human Movement in Health & Disease; Lippincott W&W, Philadelphia, 2006.
3. Sewell D, Watkins P, Griffin M; Sport and Exercise Science; Hodder Arnold, London; 2005.

RESEARCH METHODOLOGY**60 Hours**

The instructional course in research methods provides the candidate an opportunity to develop the outlook and grounds for future research work. This will help the student to objectively review published articles and approach daily practice methods. This will also train the student in utilizing of library facilities for literature search and the art of presentation.

1. Introduction to Research Methods
2. Concept – Nature and significance of research, Definition of Research: general characteristics, qualities of good research work, objectives of research, classification of research, basic research, applied research, action research, operational research, experimental method – case study method.
3. Meaning of Research – purposes and steps, formulating Hypothesis – choice of designs and data collection.
4. Data collection methods- Scale and techniques of psychological measures. Definition, reliability and validity role for tests of reliability and validity – pilot studies. Survey – observation – interview – Questionnaire and data processing.
5. Selection of Research problems – sources – criteria – statement of research problems.
6. Hypothesis – statistical significance
7. Research Design – Descriptive and Diagnostic design
8. Practical Application of Research Process – selection and statement of problem and hypothesis, selection of research approach, data gathering and data analysis plan, selection of sample, identifying the assumption and limitations of study, designing the pilot study.
9. Conducting the study, implementing the data gathering plan and data analysis plan.
10. Preparing the Research report – mechanics/writing the report, documentation, arrangement of report, practical presentation of study for discussion.
11. Historical Review of Physiotherapy before 1900 – 1950 onwards
12. Critique of Physiotherapeutic studies – instruments and tools, administration and practice

Suggested references:

1. Hicks CM; Research Methods for Clinical Therapists; Churchill Livingstone, Edinburgh; 2002.
2. Raveendran R, Gitanjali B; A Practical Approach to PG Dissetation; Jaypee brothers, New Delhi;1997.

BIOSTATISTICS**40 Hours**

The instructional course in biostatistics provides the candidate an opportunity to know the grounds of appropriate usage of the statistical tools for research work.

1. Definition and meaning of statistics & biostatistics.
2. Population, Samples, Sampling Procedures, Sampling techniques – Simple random sampling, systematic sampling, stratified random sampling, cluster sampling, quota sampling.
3. Classification of data – Construction of frequency distribution table.
4. Presentation of data - diagrammatic and graphical presentations. Bar diagram, Line diagram, Pie diagram, Histogram, Line graph, Frequency polygon, frequency curve, O'give curve.
5. Measure of central tendency – meaning, objective, requisites, various methods of measure of central tendency- mean, median and mode. Calculation of mean, median and mode in individual, discrete and continuous series. Classification of quartiles, deciles and percentiles in individual, discrete and continuous series.
6. Measures of dispersion – meaning, requisites, various methods of dispersion – range, inter quartile range, quartile deviation, mean deviation, standard deviation, coefficient deviation.
7. Correlation- meaning, types of correlation, Scatter diagram, Karl Pearsons coefficient of correlation (ungrouped data only), Spearman rank correlation, Coefficient (ungrouped data only).
8. Regression – Linear regression, lines of regression, estimation using lines of regression & deviation from mean. (ungrouped data only)
9. Laws of statistical regularity, errors in sampling. Sampling distribution – parameters and tests.
10. Probability - applied, conditional; Probability distribution.

Suggested references:

1. Rao KV; Biostatistics; Jaypee brothers, New Delhi; 2007.
2. Indrayan A, Sarmukaddam SB; Medical Biostatistics; Marcel Dekker, New York; 2001.
3. Norman GR, Streiner DL; Biostatistics The Bare Essentials; BC Decker Inc., Hamilton; 2000.

EDUCATION TECHNOLOGY**60 Hours**

At the completion of the course the candidate is expected to acquire knowledge about the Philosophies of Education, values, principles of curriculum, techniques of teaching, psychological tools and principles of guidance and counseling.

1. Education and Philosophy
2. Concepts of teaching and learning – principles, maxims of teaching and techniques of teaching – simulated patient management demonstration
3. Instructional Media – Communication concept, display boards, overhead projector, slide projector, handouts, pamphlets, charts, photographs, models, specimens, tape recorder, video, computers, multimedia and selection of media principles.
4. Curriculum – development of curriculum for PT, types of curriculum, formation of philosophy, objectives, course objectives, placing, course placement, time allotment, selection and organization of learning experience, Master plans of courses, Master rotational plan- individual rotational plan, correlation of theory and practice, Hospital and community areas for clinical instruction, Clinical assignments, Current trends and curriculum planning.
5. Guidance and Counselling – need for guidance, types of counseling, services for students and faculty.
6. Training to prepare lesson plans and conduct classes, prepare plan for assessment of students of physiotherapy (Proficiency test), practice selected skills through micro teaching, low cost teaching aids, hospital and community areas for instruction.
7. Continuing Education: Faculty development and development of personnel for PT services.

Suggested references:

1. Educational Technology – Kumar.K.L.
2. Philosophy of Education – Krishnamoorthi J
3. Textbook of Educational Technology – PanneerSelvam A; Sterling Publishers.

MANAGEMENT**40 Hours**

Development of Management skills take up a leadership role in the field of physical therapy and bring about quality control and assurance in this field. The following management topics are highlighted.

1. Management: Definition, Principles, Functions and Evolution of management thought; Scientific management theory, Classical theory – systems approach, contingency or situational approach.
2. Management process: Planning, Organising, Directing, Controlling. Decision making.
3. Introduction to Personnel Management: Staffing, recruitment selection, performance appraisal, collective bargaining, discipline, job satisfaction.
4. Quantitative methods in management: relevance of statistical and /or techniques in management.
5. Marketing: Market segmentation, marketing research, product planning, pricing, channels of distribution, promotion, consumer behaviour.
6. Total Quality Management: Basis of quality management – aids for quality control, quality assurance programme in hospitals, medical audit, and international quality systems.
7. Hospital as an organization: Types of hospitals, functions and special roles of hospital, hospital staffing, general, special & technical medical services, non-medical services of hospital.
8. Management in Physiotherapy: Organisational structure & Personnel management for physiotherapy practice,

Suggested references:

1. Prasad LM; Principles & Practice of Management; Sultan Chand & Sons, New Delhi; 1989.
2. Davies RL, Macaulay HMC; Hospital Planning and Administration; WHO, Geneva/ Jaypee Brothers, New Delhi; 1995.
3. Nosse LJ, Friberg DG; Management Principles for Physical Therapists; Williams & Wilkins, Baltimore; 1992.
4. Kotler P; Marketing Management.

PSYCHOLOGY**20 hours**

Psychology provides information with regard to the theoretical concepts used in the interpretation of behaviour, to make the students appreciate the significance of psychological application in teaching clinical practice.

Psychology as a science and the fields of application

Branches of Psychology and schools of psychology

Role of heredity and environment

Nature of intelligence and its assessment

Emotion and mind – body relationship

Motivation – basis of motivational behaviour and Maslow's need Hierarchy theory.

Personality assessment tools and techniques

Leadership qualities and development of leadership skills

Theories of Learning and factors conducive for learning

Communication – skills, barriers, role of therapy

Concept of mind and defence mechanisms

Introduction to Clinical Psychology – neuroses, types and causes and therapy

Psychotherapy – techniques, psychoanalysis, behaviourism, logotherapy, client centred therapy

Sensation and perception

Suggested references:

Morgan, Clifford, T. King, Richard, A. John Weissy – Introduction to Psychology.

Wolman. B.B. – Contemporary theories and systems in Psychology

Coleman J.C. Abnormal Psychology and Modern Life

Kaplan H.I. & Sadock – Comprehensive Text Book of Psychiatry.

YOGA & PHYSIOTHERAPY**40 hours**

1. Introduction to Yoga - explanation of yoga, yoga as an art and science.
2. Branches of Yoga – Jnana yoga, hatha yoga, bhakthi yoga, mantra yoga, karma yoga
3. The Yogic view of the human body - our five bodies, the nadis and the chakras
4. Stress Management through Yoga Therapy – concepts of stress and anxiety.
5. Ashtanga Yoga – also known as Raja Yoga, the eight limbs of Astanga- Niyama, Asana, Pranayama, Dhyana, Dharana, Samadhi.
6. Yoga & Therapy – Yogic exercises for common ailments of joints, nerves and respiratory system.

Suggested references:

1. Ray D; Yogic Exercises; Jaypee Brothers, New Delhi; 1998.

2. Patel; Yoga & Rehabilitation; Jaypee Brothers, New Delhi; 2008.

PHYSIOTHERAPY ETHICS**20 Hours**

1. Morals and Ethics – Code of ethics, ethical analysis of moral problems, beliefs and orientation of people and community towards health/healthcare.
2. Basis of ethical practice in physiotherapy. Relationship between professions and professional groups, physiotherapist – patient relationship. Types of consent, referrals, over utilization and under utilization of physiotherapy services. Obligation and Responsibilities to patient.
3. Rights of patients, citizens' charter for hospital services, fee for service, confidentiality, information to patients
4. Records, maintaining inventory, different types of records needed in physiotherapy practice, planning and organizing a unit of physical therapy, rationing of time, manpower, money resources to consumers.
5. Quality of professional service, peer review, continuing education, research, community work, social audit, other forms of quality assurance.
6. Practice - Hospital as an organization. Different services of a hospital, clinical and supportive services, community based practice, visits, strategies of community work.

Suggested references:

1. www.apta.org
2. www.fsbt.org

RECENT ADVANCES IN PHYSIOTHERAPY**200 hours**

The candidate should familiarise with the recent advances in methods of physical evaluation and also with evidence based practice in the respective specialty, and modalities used in the therapeutic areas of physiotherapy.

I. ORTHOPAEDIC PHYSIOTHERAPY

1. PHYSICAL ASSESSMENT:
 - a. Regional Assessment: Patient history taking; observation; examination by different movements, functional assessment, special tests, joint play movements; palpation; diagnostic imaging of the following regions: Head & Face; Temporomandibular joint; Cervical, thoracic & lumbar spine; Shoulder; Elbow; Forearm, Wrist & Hand; Pelvis; Hip; Knee; Ankle & Foot.
 - b. Assessment of Posture
 - c. Assessment of Gait
2. PHYSICAL INTERVENTION:
 - a. Basic concepts & Techniques of Orthopaedic Manual Therapy: Manual methods of assessing joint dysfunction; Traditional & Non-traditional manual techniques.
 - b. Soft tissue mobilisation & manipulation
 - c. Joint mobilisation & manipulation
 - d. Home programme & Patient education
3. PHYSIOTHERAPY IN ORTHOPAEDIC CONDITIONS:
Physiotherapy in various orthopaedic conditions: Medical conditions; Surgical conditions; and in patients with external appliances.
4. ORTHOPAEDIC PHYSIOTHERAPY IN SPECIAL AREAS:
 - a. Community areas
 - b. Industrial areas
 - c. Sports areas
 - d. Geriatrics
 - e. Paediatrics

Suggested references:

1. Magee DJ; Orthopedic Physical Assessment; Saunders, Philadelphia; 2002.
2. Edmond SL; Joint Mobilization / Manipulation; Mosby, Missouri; 2006.
3. Malone TR, McPoil, Nitz AJ; Orthopedic and Sports Physical Therapy; Mosby, Missouri; 1997.
4. Hertling D, Kessler RM; Management of Common Musculoskeletal Disorders; Lippincott W&W, Philadelphia; 2006.
5. Donatelli RA, Wooden MJ; Orthopedic Physical Therapy; Churchill Livingstone, New York; 2001.
6. Cioppa-Mosca J *et al*; Postsurgical Rehabilitation Guidelines for the Orthopaedic Clinician; Mosby, Missouri; 2006.
7. Pruthvish S; Community Based Rehabilitation of Persons with Disability; Jaypee Brothers, New Delhi; 2006.
8. Nitz JC, Hourigan SR; Physiotherapy Practice in Residential Aged Care; Butterworth Heinemann, Edinburgh; 2004.
9. Guccione AA; Geriatric Physical Therapy; Mosby, Missouri; 2000.
10. Cameron MH, Monroe LG; Physical Rehabilitation; Saunders, Missouri; 2007.

II. NEUROLOGICAL PHYSIOTHERAPY

1. NEUROSCIENCE:

Motor Control & Motor Learning, Plasticity, Postural Control & Locomotion-their development, Theories of Neural Control.

2. EVALUATION:

a. Principles of assessment: Assessment of Higher Centres, Cranial nerves, Perception, Motor system, sensory system, Posture, Balance, Coordination and Voluntary control. Analysis of gait & functional mobility; Assessment procedures in children & elderly; Environmental Analysis; Pain assessment.

b. Special tests, Scales & Measurement of all neurological conditions.

c. Investigation Techniques - CT scans, MRI, X-Ray, Nuclear imaging, NCV, EMG: Evoked potentials, Basic procedure, principles and interpret of results in neurological conditions.

d. Disability and Compensation: Method of disability evaluation – Concepts of impairment, disability and handicapped, MC Bride method, Phulhems method. Government Notifications for evaluation of disability.

3. INTERVENTIONS:

General Principles of Treatment: Theoretical basis of treatment concepts; Facilitation & Inhibition methods, Different types of Approaches in Neuro rehabilitation – Neuro-developmental therapy, Proprioceptive neuromuscular facilitation, Motor relearning programme, Brunnstorm technique, Margaret, Rood's approach, Sensory Integration; Latest advancement in Therapeutic approaches; Hypothesis Oriented Clinical Practice; Evidence based Neurological Physiotherapy; Physiotherapeutic intervention for all neurological dysfunctions. Orthotic appliances in Neurological disorders; Environmental Modifications & Ergonomics.; Clinical Psychology in Neurological rehabilitation.; Multi-disciplinary Team (MDT) in Neuro Rehabilitation.; Community based rehabilitation for Neurological patients.

Suggested references:

1. O'Sullivan, Schmitz: Physical Rehabilitation – Assessment and Treatment
2. Martin, Kessler: Neurological Intervention for Physiotherapy
3. Nicola J. Petty: Neuromusuloskeletal examination and assesement.
4. Darcy A. Umphred: Neurological Rehabilitation.
5. Anne Shumway' Cook: Motor Control – Translating research in clinical practice.
6. Maria Strokes: Neurological Assessment & Rehabilitation.
7. Fredrick Christopher: Pathophysiology of nervous system.
8. Susan Adler: PNF in practice.
9. Carr, Shepherd: Motor relearning programme.
10. Berta Bobath: Neurodevelopmental therapy in cerebral palsy & hemiplegia.

III. CARDIO - RESPIRATORY PHYSIOTHERAPY

1. **CARDIOPULMONARY ASSESSMENT & INTERVENTION:** Medical chart review; Interview with patient and family; Physical examination.
2. **RATIONALE OF LABORATORY INVESTIGATIONS & DIAGNOSTIC TESTS:** Thoracic imaging techniques; Electrocardiogram & Echocardiogram; Pulmonary function tests; Monitoring and interpreting medical investigations; Evaluation of cardiac dysfunction and arterial blood gas analysis; Cardio -vascular stress test & Ergometry; Cardiac Catheterisation & Coronary angiography.
3. **PULMONARY REHABILITATION**
 - a. **PHYSIOTHERAPY TO REDUCE THE WORK OF BREATHING:** Breathlessness and handling breathless people; Sleep and rest; Relaxation Positions for breathlessness; Breathing Re-education & adjuncts; Pacing and other respiratory problems.
 - b. **PHYSIOTHERAPY TO CLEAR SECRETIONS:** Sputum in perspective; Hydration and humidification; Exercise and postural drainage; Manual techniques; Breathing techniques; Mechanical aids; Cough; Pharyngeal suction; Nasopharyngeal airway; Mini tracheostomy.
 - c. **PHYSIOTHERAPY TO INCREASE LUNG VOLUME:** Introduction to respiratory physiotherapy; Techniques to increase lung volumes; Controlled mobilization and positioning.
 - d. **PHYSIOTHERAPY FOR SPECIFIC GROUP OF PEOPLE:** Over view of cardiac rehabilitation; Hyperventilation syndrome; Management of elderly and terminally ill people.
 - e. **PHYSIOTHERAPY FOR CHILDREN AND INFANTS:** Physiotherapy for neonates in ICU; Modifications for specific neonatal disorders; Emergencies in the neonatal units.
 - f. **PHYSIOTHERAPY MANAGEMENT IN ICU:** Management of critically ill patients; Post surgical cardiopulmonary management; Resuscitation procedures / techniques; hyperbaric oxygen therapy.
 - g. **PULMONARY MANAGEMENT OF PATIENTS:** with Spinal Cord Injury; Treatment techniques in Obstructive, Restrictive & Infective Lung Conditions.
 - h. Preventive Pulmonology – Concepts and Health Awareness.
4. **CARDIAC REHABILITATION**
 - a. **Ischaemic Heart Disease:** Detailed entourage of all the associated complications and health education for preventive cardiac care.
 - b. **Cardio Pulmonary Transplantation and Physiotherapy.**

Suggested references:

1. Hillegass EA, Essentials of Cardiopulmonary Physical Therapy; Saunders, 2001.
 2. Hough A, Physiotherapy in respiratory care Jaypee Publishers, 2001.
 3. Pryor JA; Prasad SA, Physiotherapy for respiratory and cardiac problems Elsevier, 2004.
 4. Mackenzie CF, Chest physiotherapy in intensive care unit Williams and Wilkins 1989.
 5. Felter D.F. Cardiovascular and Pulmonary physical therapy. Mosby, 2006.
 6. Froelicher V.F. Exercise and the heart. Elsevier 2006.
 7. Douglas PS; Cardiovascular health and disease in women. Saunders 2002.
 8. Jamie C.Paz Michel P. West. Acute care handbook for physical therapist Butterworth Heine Mann 2002.
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