



YENEPOYA UNIVERSITY

Deralakatte, Mangaluru -575018

REGULATIONS AND CURRICULUM GOVERNING

POSTGRADUATE PROGRAM IN

MASTER OF PHYSIOTHERAPY (MPT)

(CURRICULUM - EFFECTIVE FROM 2009-10)

ATTESTED

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NOTIFICATION – 2-ACM/2009 dtd.10/05/2009

Sub: Curriculum for M.P.T. course

Ref: Resolution of the Academic Council at its 2nd meeting held on 05.05.2009
vide Agenda -5

The curriculum for M.P.T course submitted by the Board of Studies, Yenepoya Physiotherapy College has been approved at the 2nd meeting of Academic Council held on 05.05.2009 and subsequently at the meeting of Board of Management.

This notification is issued for implementation with effect from the academic year 2009-2010.

To:

The Principal – Yenepoya Physiotherapy College

Copy to:

1. Controller of Examinations
2. File copy



REGISTRAR
Registrar
Yenepoya University
University Road, Deralakatte
Mangalore - 575 018

1. PROGRAM TITLE

MASTER OF PHYSIOTHERAPY (MPT)

2. 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.

3. SPECIALITIES OFFERED

1. Orthopaedics& Sports
2. Neurosciences
3. Cardio-Pulmonary Sciences
4. Paediatrics
5. Manual therapy

4. GOALS OF COURSE

1. Preparation of a postgraduate student towards his/her professional autonomy with selfregulating 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 tophysiotherapy
4. Acquainting a student with concept of quality care at the institutional as well as thecommunity 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

5. ON COMPLETION OF THE PROGRAMME

- The Post Graduate student will be able to work with people of all ages, from infants to the aged, in fields as diverse as Neurology, Cardio respiratory, Orthopedics and Community.
- The candidate will be able to find places as diverse as both public and private general hospitals, speciality and super- speciality hospitals, private clinics, special school, nursing homes, domiciliary care, home care programs and industry.
- The candidate has scope for better opportunities to work in new health care sectors which are still emerging.

6. REGULATIONS

6.1 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 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 Physiotherapy Colleges recognized by Yenepoya University- Karnataka are eligible.

OR

Candidates who have passed BPT through Bridge Course or through Lateral Entry after completing their Diploma in Physiotherapy from institutions where the mode of study is a full time program 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 Physiotherapy Colleges recognized by Yenepoya University - Karnataka are eligible.

Obtaining Eligibility Certificate

No candidate other than candidate passed the examinations conducted by Yenepoya University shall be admitted for the postgraduate degree course unless the candidate has obtained and produced the eligibility certificate issued by Yenepoya University, Karnataka. 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.

6.2 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	0 - 12 months
II year:	MPT	13 - 24 months

6.3 MEDIUM OF INSTRUCTION

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

64 COURSE CONTENT & STRUCTURE

Subjects	Teaching & Learning Methods	Weekly Class hours	Total Hours	
<u>1ST YEAR</u> Paper I – Professional Principles and Practices in Physiotherapy 1. Principles of Physiotherapy practice 2. Advanced Biostatistics and Research Methodology 3. Teaching Methodology Paper II - Basic Sciences in Rehabilitation 1. Biomechanics, Kinesiology, Pathomechanics and ergonomics 2. Exercise Physiology 3. Electro Physiology and Electro diagnosis Paper II - Physical Rehabilitation	Lectures	2	180	
	Seminars	2	180	
	Practicals and Demonstrations.	4	360	
	Clinical Discussions	2	180	
	Clinical Case presentation	2	180	
	Journal Club	2	180	
	Class room Teaching	1	90	
	Library	3	270	
	<u>2ND YEAR</u>	Clinical Training	15	1350
	SPECIALITIES 1. Orthopaedics& Sports 2. Neurosciences 3. Cardio- Pulmonary Sciences 4. Paediatrics 5. Manual therapy			
Synopsis & Dissertation		3	210	
Community Camps, Field Visits, Participation in Workshops & Conferences			60	
TOTAL HOURS		36	3240	

6.5 METHOD 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, case 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.

6.6 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 be 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.

Model checklists are given ,which may be copied and used

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 marksobtained in such tests will be maintained by the Head of Department and sent to the University, when called for.

6.7 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 farther, 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.

6.8 CONFERENCE RULES

PGs who present papers at conferences will be entitled to take leave which will be considered as "on duty".

Post graduates students are allowed to attend CME's in the same campus which may be conducted during working days. Yet, they must complete their assigned clinical work before, during or after the working hours of CME's.

6.9 CLINICS

- The PG must enter the details of equipment's taken to the ward in the appropriate register. He/She is also responsible for returning it back to the department.
- PGs may be permitted by the unit in-charge to attend the rounds conducted by the other departments and while attending the rounds, student must identify himself/herself to the unit head, who is conducting the rounds.
- Unit in-charges of other areas may ask the PG students to help them, once their assigned clinical work in the posted unit is over.

6.10 CLINICAL RESPONSIBILITIES

- The postgraduate responsibilities include clinical work, clinical supervision of undergraduate students. Students may be asked to co-ordinate undergraduate sessional examinations.
- PG students are not permitted to assign patients to interns and undergraduate students without the permission from unit in-charge. If the unit in-charge or faculty is not available,

then the PG student will have to take the responsibility for smooth running of the clinical unit he/she is posted in. Any problems arising at such junctures must be informed and discussed immediately with the faculty available or clinical in-charge or Principal without fail.

6. 11 EXAMINATION PATTERN

I Internal Examination (Assessment):PRACTICAL

50% of internal assessment marks will be given based on their IA Examinations. Remaining 50% of the internal assessment marks (25 marks) will be constituted from clinical performance. Of which 40% is from case presentation, 40% is from Journal presentation and 20% from miscellaneous.

a. Case Presentation and Journal Presentation

- Students may be asked to maintain a record book of cases and journals presented with comments and grades from the evaluators. In case of unsatisfactory presentation, the candidate will be rewarded "0" marks for that presentation. The candidate will be exempted from presentation only if he/she falls ill(more than 15 days only).

OR

The student will be asked to extend the posting until satisfactory completion*. In the latter case, the student will forego the same number of study leave days due to extension of the posting.

- An appropriate case should be selected for the presentation in consultation with the unit in-charge. The case must be presented at the hospitals in presence of the patient. Case presentation will not be accepted in absence of the patient. If the case presentation is not satisfactory, the PG may have to repeat the same case or evaluate another case as directed by the faculty.

b. Miscellaneous

- a) Punctuality
- b) Communication of patient details with the faculty incharge
- c) Documentation - initial evaluation and daily notes.
- d) A personal file of evaluations, daily progress notes and discharge summaries of all patients seen during each posting should be submitted to the unit in-charge for signature.

- e) Interaction with patients, students and staff
- f) Initiative in patient care and UG clinical teaching.

II SEMINARS (50% of Internal Assessment): THEORY

- The topics must be well-researched must include common knowledge, recent advances, analysis references etc. They must be typed double-spaced and one copy of the same to be submitted to the Moderator, at least one week prior to the seminar date.
- The seminar topics will be assigned to PG students by the MPT coordinator. No student will be allowed to exchange or modify the assigned topics and if found, necessary disciplinary action will be taken. The topic name, date of seminar and the moderators name will be displayed on the students notice board at least a month ahead of the presentation date.
- The aggregate marks of all the presentations done in a year will constitute 50% (25 marks) of the internal assessment. The remaining 50% is constituted from the Internal Assessment exams.
- Seminars will be assessed by at least two faculty members (Moderators). The average marks given by the moderators will be taken as the marks for that presentation.
- In case if the candidate fails to present the topic, then he/she will be rewarded "0" marks for that presentation. The candidate will have no right to decide the seminar topic or the date of presentation. Rescheduling the presentation will be strictly not entertained. The candidate will be exempted from presentation only if he/she falls ill or family emergency arises. In such situations, he/she must produce relevant documents of the same.
- While submitting, the material should be enclosed in a file folder or other presentable form.

6.12 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 Controller of Examination of university in the

prescribed proforma 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 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
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, 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.

Publication/Presentation

Before the final exam Students shall have either published or submitted an article to an indexed Journal or an Oral/Poster Presentation in a conference, from the dissertation work.

6.13 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

1. M.Sc. (PT) /MPT with three years teaching experience working on a full time position at a recognized institution.
2. The age of guide / teacher shall not exceed 60 years.
3. The guide student ratio should be 1:5

Change of Guide

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

6.14 SCHEDULE OF UNIVERSITY EXAMINATION

The University shall conduct examination for MPT course at the end of each year. The examinations shall be known as MPT 1stYear Examination and MPT 2ndYear 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 1stYear 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 1stYear Examination, or the supplementary examination for MPT 1stYear thereof, he/she will continue the course with his/her batch. If a student fails in the first attempt of MPT 2nd Year 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 1st Year or MPT 2nd Year Examination, he/she has

to appear for only that particular paper both theory and practical respectively.

6. 15 SCHEME OF EXAMINATION AND DISTRIBUTION OF MARKS OF I YEAR MPT

	I Year	Theory	Practical	Internal Assessment		Total
				Theory	Practical	
Paper I	Professional Principles and practices in Physiotherapy	100	-	50	-	150
Paper II	Basic Sciences in Rehabilitation	100	-	50	-	150
Paper III	Physical Rehabilitation	100	100	50	50	300
Total						600

6. 16 SCHEME OF EXAMINATION AND DISTRIBUTION OF MARKS OF II YEAR MPT

ORTHOPAEDICS & SPORTS

	II Year	Theory	Practical	Internal Assessment		Total
				Theory	Practical	
Paper I	General Physiotherapy In Orthopedics And Sports	100	100	50	50	300
Paper II	Advanced Physiotherapy In Orthopaedics And Sports	100	100	50	50	300
	Dissertation	Book		Presentation	Defense	
		40		20	40	100
Total						700

NEUROSCIENCES

	II Year	Theory	Practical	Internal Assessment		Total
				Theory	Practical	
Paper I	Neuro Sciences for Rehabilitation	100	100	50	50	300
Paper II	Advanced Physiotherapy In Neuro Sciences	100	100	50	50	300

	Dissertation	Book	Presentation	Defense	
		40	20	40	100
Total					700

CARDIO-PULMONARY SCIENCES

II Year		Theory	Practical	Internal Assessment		Total
				Theory	Practical	
Paper I	Cardio- Pulmonary Sciences & Women's Health	100	100	50	50	300
Paper II	Advanced Physiotherapy In Cardio- Pulmonary Sciences	100	100	50	50	300
	Dissertation	Book		Presentation	Defense	
		40		20	40	100
Total						700

PAEDIATRICS

II Year		Theory	Practical	Internal Assessment		Total
				Theory	Practical	
Paper I	General Paediatrics Physiotherapy	100	100	50	50	300
Paper II	Advanced Paediatrics Physiotherapy	100	100	50	50	300
	Dissertation	Book		Presentation	Defense	
		40		20	40	100
Total						700

MANUAL THERAPY

II Year		Theory	Practical	Internal Assessment		Total
				Theory	Practical	
Paper I	General Physiotherapy in Orthopedics and Sports.	100	100	50	50	300
Paper II	Advanced Practice in Manual therapy	100	100	50	50	300
	Dissertation	Book		Presentation	Defense	
		40		20	40	100
Total						700

PARTICULARS OF PRACTICAL, VIVA-VOCE & DISSERTATION

- Practical examination will be aimed at examination of clinical skills and competence of the candidates for under taking independent work as a specialist.
- 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 2nd Year 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

Theory: Maximum Marks: 100 (No choice)

Duration: 3 Hours

1. Long Essay (2 Questions) - 2x 20 - 40 Marks
2. Short Essay (6 Questions) - 6x 10 - 60 Marks

Practical / Clinical and Viva Voce- 100 Marks

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

Long case (1) - 1 x 30 - 30 Marks

Short case (2) - 2 x 15 = 30 Marks

Viva-voce = 40 Marks

Total = 100 Marks

6.17 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.

6.18 CRITERIA FOR DECLARING AS PASS IN UNIVERSITY EXAMINATION
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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 50% of maximum marks in clinical and Viva-Voce aggregate.

6.19 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.

MPT -I YEAR

DESCRIPTIVE COURSE CONTENT

MPT I - YEAR

PAPER I- PROFESSIONAL PRINCIPLES AND PRACTICES IN PHYSIOTHERAPY

Total Max -100 Hrs

I. PRINCIPLES OF PHYSIOTHERAPY PRACTICE MAX – 20 HRS.

1. Development of Physiotherapy Profession
2. 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.
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.

II. ADVANCED BIOSTATISTICS AND RESEARCH METHODOLOGY

MAX - 60 HRS.

Unit 1: Introduction:

Introduction to Biostatistics and research methodology, types of variables and scales of measurements, measures of central tendency and dispersion, rate, ratio, proportion, incidence and prevalence.

Unit 2 : Sampling:

Random and non-random sampling, various methods of sampling simple random, stratified, systematic, cluster and multistage. Sampling and non-sampling errors and methods of minimizing these errors.

Unit 3: Basic probability distributions and sampling distributions:

Concept of probability and probability distribution. Normal, poisson and binomial distributions, parameters and application. Concept of sampling distributions. Standard error and confidence intervals, skewness and Kurtosis

Unit 4: Tests of significance:

Basics of testing of hypothesis - Null and alternate hypothesis, type I and type II errors, level of significance and power of the test, p value.

Tests of significance (Parametric)-t-test (Paired and unpaired), Chi square test and test of proportion, one way analysis of variance.

Repeated measures analysis of variance.

Tests of significance (non-parametric)-Mann-Whitney u test,

Wilcoxon test,

Kruskal-Wallis analysis of VARIANCE. Friedmann's analysis of variance.

Unit-5: Correlation and regression:

Simple correlation - Pearson's and Spearman's; testing the significance of correlation coefficient linear and multiple regression.

Unit-6 : Sample size determination

General concept, sample size for estimating mean and proportion, testing of difference in means and proportions of two groups.

Unit -7: Study designs

Descriptive epidemiological methods-case series analysis and prevalence studies.

Analytical epidemiological methods- case control and cohort studies.

Clinical trials /intervention studies, Odds ratio and relative risk, stratified analysis

Unit-8: Multivariate analysis:

Introduction to Concept of multivariate analysis, introduction of logistic regression and survival analysis.

Unit-9:

Reliability and validity evaluation of diagnostic tests

Unit-10: Format of Scientific documents.

Structure of research protocol, structure of thesis/ research report, formats of reporting in scientific journals. Systematic review and meta analysis.

SUGGESTED BOOKS:

- Lwanga SK and Cho-YookTye (Editors). Teaching Health Statistics,
- Twenty lessons and seminar outlines, World Health Organization ,Geneva.
- Mahajan BK. Methods in Biostatistics for medical students and research workers. 6th Edition, Jaypee brothers Medical Publishers,New Delhi, 1997.
- Kothari CR. Research Methodology: Methods and Techniques. Wiley Eastern Ltd,

III. TEACHING METHODOLOGY

MAX - 20 HRS.

Unit I :Concept of teaching and learning

- Theories of teaching
- Relationship between teaching and learning
- Psychology of education
- Dynamics of behaviour. Motivational process of learning perception, individual differences, intelligence personality.

Unit II :Curriculum

- Curriculum Committee
- Development of a curriculum for P.T
- 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 in curriculum planning.

Unit III :Principles and methods of teachings

- Strategies of teaching
- Planning of teaching
- Organization, writing lesson plans
- A.V. aids
- Teaching methods- socialised teaching methods.

Unit – IV : Measurement and Evaluation

- Nature of Measurement of education, meaning, Proces, personnel, standardized, non standardized tests.
- Steps of constructing a test, measurement of cognitive domain. Assessment techniques of affective, Psychomotor domains, administering scanning and reporting.
- Standardized tools, important tests of intelligence, aptitudes , instrument, personality, achievement and sestatus scale.
- Programme evaluation.
- Cumulative evaluation.

Unit – V : Guidance and counseling

- Philosophy, principles and concepts. Guidance and coueselling services of students and faculty.

Unit – VI

- Faculty development and development of personnel for P.T. services.
- Continuing educational programs.

SUGGESTED BOOKS:

- Hand Book Teaching for Physical Therapist – Katherine & Shepard – 1st Edition, Butterworth Heinemann

PAPER II- BASIC SCIENCES IN REHABILITATION

TOTAL MAX – 150 HRS.

I. BIOMECHANICS, KINESIOLOGY, PATHOMECHANICS AND ERGONOMICS MAX - 75 HRS.

Unit I :Biomechanical principles

1. Biomechanics – definition and perspective.
2. Kinematic concepts for analyzing human motion
3. Kinetic concepts for analyzing human motion
4. Linear kinematics of human movement
5. Angular kinematics of human movement
6. Linear kinetics of human movement
7. Angular kinetics of human movement
8. Fluid mechanics (Related to Hydrotherapy)

Unit II :Biomechanics of tissues and structures of Musculoskeletal system

1. Biomechanics of human bone growth and development
2. Biomechanics of joints .
3. Biomechanics of skeletal muscle.
4. Biomechanics of cartilage, tendons and ligaments.
5. Biomechanics of nerves.

Unit III :Kinesiology and pathomechanics of upper extremity

1. Shoulder unit.
2. Elbow unit
3. Wrist and hand unit

Unit IV :Kinesiology and pathomechanics of head and spine

1. Musculoskeletal function within the head.
2. Spine unit.

Unit V: Kinesiology and pathomechanics of lower extremity

1. Hip unit
2. Knee unit
3. Ankle and foot unit

Unit VI :Equilibrium , Posture and Gait

1. Equilibrium and human movement
2. Posture
3. Gait

Unit VII :Ergonomics

RECOMMENDED BOOKS:

1. Kinesiology, The Mechanics and Pathomechanics of Human movement, Carol A – Oatis, Lippincott William & Wilkins
2. Burnstrom's Clinical Kinesiology – Laura K. Smith, Elizabeth L. Wriss, Jaypee Brothers.
3. Joint structure and function – A Comprehensive analysis, Pamela K. Levangia, Cynthia C. Norkin – Jaypee Brothers
4. Basic Biomechanics of the Musculoskeletal system, Margareta Nordin, Victor H. Frankel, Lippincott Williams & Wilkins
5. Basic Biomechanics , Susan J. Hall, Brown & Benchmark
6. Fundamentals of Biomechanics, Duane Knudson, Springer
7. Occupational Ergonomics – Work related Musculoskeletal Disorders of the upper limb and back, Francescovidante, Thomas Armstrong and Asakilbom, Taylor & Francis

II. EXERCISE PHYSIOLOGY

MAX - 50 HRS

Unit I :Nutrition: The base for Human Performance.

1. Carbohydrates, lipids and proteins
2. Vitamins, minerals and water
3. Optimal Nutrition for Exercise

Unit II :Energy for Physical Activities

1. Energy transfer in the body
2. Energy transfer in exercise
3. Measurement of Human Energy Expenditure
4. Human energy expenditure during rest and physical activity
5. Energy expenditure during walking, Jogging, running and swimming
6. Individual differences and measurement of energy capacities

Unit III :Systems of energy delivery and utilization

1. Pulmonary structure and function
2. Gas exchange and transport
3. Dynamics of pulmonary ventilation
4. Cardio vascular system
5. Cardio vascular regulation and integration
6. Functional capacity of cardio vascular system
7. The immune system – The immune response to exercise, training adaptations in immune function
8. Skeletal system – Assessment of bone health, skeletal adaptations to exercise training
9. Skeletal Muscle: structure, function and its response to exercise
10. Neural control of human movement
11. Fatigue assessment and scientific organization of work rest regimes to control fatigue.
12. Endocrine system: organization, acute and chronic responses to exercise

Unit IV :Enhancement of Energy capacity

1. Training for Anaerobic and aerobic power

2. Muscle strength training
3. Special aids to exercise training and performance.

Unit V: Exercise performance and environmental stress

1. Exercise at medium and high altitude.
2. Exercise and thermal stress
3. Sport diving.
4. Micro gravity (Space)

Unit VI :Body composition, Energy Balance and weight control.

1. Body composition assessment
2. Physique, performance and physical activity
3. Overweight, obesity and weight control

Unit VI :Exercise performance for specific populations

1. Pediatric exercise physiology

- a. Growth, development and maturation
- b. Evaluating fitness and physical activity in children
- c. Childhood responses to physical activity and exercise training
- d. Exercise prescription, guidelines and recommendations for children.

2. Geriatric Exercise Physiology

- a. Aging
- b. Aging, physical inactivity and disability
- c. Exercise physiological changes with aging.
- d. Exercise training for elderly.

3. Female specific issues

- a. Comparison between sexes
- b. Gynecological consideration
- c. Nutritional issues

Unit VIII :Exercise physiology for clinical populations

1. Disablement and exercise prescriptions

- a. Conceptualization of disability
- b. Disablement models
- c. Disability and the exercise prescription
- d. Exercise prescription intervention traid.

2. Clinical exercise testing

- a. Measuring cardiovascular endurance
- b. Principles of exercise testing
- c. Selecting the graded exercise protocol
- d. Exercise electrocardiography.
- e. Graded exercise test.

3. Clinical exercise physiology for

- a. Cardiopulmonary rehabilitation
- b. Neurological rehabilitation
- c. Orthopaedic rehabilitation
- d. Cancer rehabilitation

Recommended books

1. Exercise physiology – MC Ardle, katch and katch 6th edition, Lippincott Williams & Wilkins.
2. Exercise physiology – Brown, Miller and Eason, Lippincott Williams & Wilkins.
3. Exercise physiology – plowman and smith, 2nd edition, Lippincott Williams and Wilkins.

III ELECTROPHYSIOLOGY AND ELECTRODIAGNOSIS

MAX :25 HRS.

Unit I : Anatomical and physiological basis for electromyography and nerve conduction studies

1. Motor unit
2. Excitability of the nerve and muscle
3. Propagation of action potential
4. Neuro muscular transmission
5. Muscle contraction

Unit II : Concepts of Electromyography

1. Instrumentation and signal characteristics

- a) Electrodes.
- b) Myoelectric signal
- c) Motor unit action potential.
- d) Artifacts.

2. Amplifying the EMG signal

- a) Differential amplifier
- b) Common mode rejection ratio
- c) Signal – to – noise ratio
- d) Gain
- e) Input – impedance
- f) Frequency band width
- g) Displaying the EMG signal

Unit III :Clinical EMG

1. EMG examination
 - a) Insertional activity
 - b) Electrical silence (Muscle at rest)

- c) Normal motor unit action potentials
- d) Abnormal potentials
 - i. Spontaneous activity
 - Fibrillation potentials
 - Positive sharp waves
 - Fasciculations
 - Myotonic and complex repetitive discharges
 - ii Abnormal voluntary potentials

- 2. Single fibre EMG
- 3. Macro EMG

Unit IV :Nerve conduction tests

- 1. Instrumentation
- 2. Motor nerve conduction velocity
 - a) Stimulation and recording
 - b) Calculation of motor nerve conduction velocity
 - c) Standard motor nerve conduction techniques for – Median Nerve , Radial Nerve , Ulnar Nerve , Peroneal Nerve , Tibial Nerve , Femoral Nerve
- 3. Sensory Nerve conduction velocity
 - a) Stimulation and recording
 - b) Calculation of sensory nerve conduction velocity
 - c) Standard sensory nerve conduction techniques for Median Nerve, Radial Nerve, Ulnar Nerve, Tibial Nerve, Peroneal Nerve, Sural Nerve, Saphenous Nerve
- 4. Effect of Age and Temperature on Nerve conduction velocity
- 5. F Wave
- 6. Repetitive nerve stimulation test (Jolly Test)
- 7. Nerve excitability test

Unit V: Reflex Tests

- 1. H – reflex
- 2. T- reflex

3. Blink reflex
4. Jaw reflex
5. Bulbocavernosus reflex

Unit VI :Clinical implication of electromyography and nerve conduction tests

1. Disorders of peripheral nerves
 - a) Peripheral nerve lesions
 - b) Neuropathies – Peripheral neuropathies
 - Entrapment syndromes
 - c) Radiculopathy
2. Motor Neuron Disorders
3. Myopathies
4. Myotonia
5. Myasthenia Gravis

Unit VII :Kinesiological EMG

1. Locating electrode sites
2. Signal processing
3. Timing of muscle activity
4. Normalization
5. Relationship between EMG signal and force
6. EMG and exercise

Unit VIII : Electrical safety and risks in electrodiagnostic practice

1. Guide lines for electrical safety
 - a) EMG laboratory
 - b) Equipment
 - c) Patient precautions

2. Risks in electrodiagnostic practice

- a) Bleeding disorders
- b) Cardiac valvular diseases
- c) Cardiac pace makers
- d) Chest wall EMG
- e) Hepatitis
- f) AIDS

Recommended Books:

1. Clinical Electromyograph nerve conduction studies -Shin J. oh, second edition, Williams & Wilkins
2. Clinical Neurophysiology – Misra and Kalitha, Second edition, Elsevier
3. Physical rehabilitation –O’ Sullivan and Schmitz, fifth edition, Jaypee brothers.

1. Clinical Decision Making.
2. Overview of Psychosocial aspects of rehabilitation
3. Vital Signs.
4. Sensory Examination.
5. Musculoskeletal examination.
6. Examination of coordination.
7. Examination of Motor function. Motor Control and Motor learning.
8. Examination of Gait.
9. Examination of Functional status and activity level.
10. Examination of environment.
11. Burns.
12. Pain Management.
13. Speech and language disorders.
14. Cancer rehabilitation.
15. Orthosis.
16. Prosthesis.
17. Wheel chair Management.

RECOMMENDED BOOKS

- Physical rehabilitation –O’ Sullivan and Schmitz, fifth edition, Jaypee brothers.

MPT - II YEAR

DESCRIPTIVE COURSE CONTENT – MPT - II YEAR

1. ORTHOPAEDICS & SPORTS AND

2. MPT IN MANUAL THERAPY

***PAPER – I GENERAL PHYSIOTHERAPY IN ORTHOPEDICS AND SPORTS**

Total Max -80 Hrs

A. Upper Limb fractures, Dislocation and other common conditions

Orthopedic and PT management of all upper limb fractures and their complications
Dislocations of shoulder and elbow with medical, surgical and PT management.
Physical therapy Rehabilitation followed by Puttiplat, Bankart's, Magnusson stalk and
Bristow operations.

Rotator cuff injuries, Impingement syndrome, Supraspinatus tendinitis, Bicipital
tendinitis, Thoracic outlet syndrome, Shoulder Hand syndrome, Carpal tunnel
syndrome, A.C joint sprain, Subacromial bursitis, Adhesive capsulitis Myofacial pain
syndrome and Primary fibromyalgia syndrome, Tennis elbow, Trigger finger,
Dequervain's disease, Dorsal ganglion, Flexion and Extension tendon injuries
Dupuytren's contracture and Reynaud's phenomenon.

Causes and Mechanism of sports injuries and prevention of sports injures of Upper
Limb

B. Lower Limb Fractures, Dislocations and Other Common Conditions

Orthopedics and PT management of all Lower Limb fractures and their Complications.

Hip, Knee and patella dislocations, its medical, surgical and PT management. Ligament
injuries around knee and ankle. Physical rehabilitation after ACL and PCL
reconstruction.

Osteochondritis dissecans, Popliteus strain, Plica syndrome, Illiotibial band friction
syndrome, Meralgia paresthetica, trochanteric bursitis, osteitis pubis, piriformis

syndrome, tarsal tunnel syndrome.

Flat foot, Hallux Valgus, Hallux rigidus, Hugelands deformity, sinus tarsi syndrome, Turf toe, interdigital neuroma, Inferior heel pain.

Causes and Mechanism of sports injuries and prevention of sports injuries of Lower limb.

C. Spine Fractures :

Fractures of cervical spine, thoraco lumbar spine its medical, surgical and PT management

D. Degenerative and Inflammatory joint disorders:

Osteoarthritis, rheumatoid arthritis, degenerative and inflammatory spinal disorders

E. Orthopedic Surgeries and its rehabilitation :

Osteotomy, bone graft, bone fixation, distraction histogenesis, arthrotomy, realignment, arthrodesis, arthroplasty, microsurgery, limb replantation, tendon transfer and amputation

F. Congenital orthopedic conditions and its PT management

Congenital dysplasia of hip, CTEV, Slipped capital femoral epiphysis, AVN of femoral head, Coxavara. Coxavalga, Forefoot varus, Forefoot valgus and Congenital vertical talus.

G. Spinal deformities

Orthotic, Surgical and PT management

H. Basic knowledge on radiology

Plain radiographs, Bone scans, CT and MRI.

I. Pharmacology in Orthopedics

Basic knowledge of common drugs used in orthopedics, their effects, interactions, relevance to PT modalities (NSAIDS, Antipyretics, antibiotics, antihypertensive, diabetic drug therapy).

References :

1. Orthopedic neurology by Hoppenfeld
2. Apley's System of Orthopaedics and Fractures, Louis Solomon, Eighth Edition
3. Orthopaedic Physical Examination : 9th Edition : By David J. Magee
4. Campbell's Operative Orthopedics, Canale and Beaty, 11th edition
5. Treatment and Rehabilitation of fractures: Stanley Hoppenfeld and Vasantha L Murthy, Philadelphia: Lippincott Williams and Wilkins
6. Basic Radiology : Michael Chen, Thomas Pope, David Ott.
7. Clinical Orthopaedic Rehabilitation : 3rd Edition: Brent Boltzmann M.D
8. Zulugaetal : Sports Physiotherapy, W B Saunders
9. Reid : Sports injuries – Assessment and Rehabilitation WB Saunders
10. Buckner and Khan : Clinical Sports Medicine ME grawhill

***Paper I is common for two specialties**

- 1. MPT in Orthopaedics&Sports and**
- 2. MPT in Manual therapy**

PAPER – II ADVANCED PHYSIOTHERAPY IN ORTHOPAEDICS AND SPORTS

Total Max -100 Hrs

SECTION A - HAND REHABILITATION

1. Architecture and function of hand
2. Detailed Assessment
3. VIC
4. Deformities
5. RSD
6. Amputations
7. Hansen's Disease
8. RA
9. Crush injuries
10. Degloving Injuries
11. Spastic Hand
12. Sensory Re – education
13. Nerve injuries management
14. Orthotics
15. Cumulative trauma disorders of the hand and wrist
16. Prosthetic management of complete hand and arm

SECTION B- PHYSIOTHERAPY IN SPORTS MEDICINE

- 1. Sports fitness assessment**
- 2. Sports training :**
 - a. General and selective tissue training
 - b. Pre-activity and off season conditioning
 - c. Warm-up and cool down
- 3. Sports nutrition**
- 4. Immediate first aid management**
 - a. On field
 - b. Off field

5. Taping techniques

6. Doping in sports

- a. Banned drugs
- b. Procedure of dope testing
- c. Control of doping abuse.

7. Non – traumatic medical condition in athlete

- a. DOMS
- b. Runner's high
- c. Exercise induced asthma
- d. Infections
- e. Hypertension
- f. Urine abnormalities
- g. Exercise addictions

8. Kinenthapometry :

Various methods to estimate body compositions

9. Female Sports specific problems :

Amenorrhea, menstrual synchrony, injury to female reproductive system, exercises in pregnancy and eating disorders.

10. Sports Specific injuries:

Special emphasis on risk factors, nature of sports and preventive with respect to individual sports.

- a. Individual event : Field and track method.
- b. Team events.
- c. Contact and Non – contact Sports.
- d. Water sports

11. Sports rehabilitation for disabled, pediatrics and geriatrics

12. Sports Psychology

- a. Pre – competitive anxiety
- b. Relaxation training.

SECTION C - MANUAL THERAPY

1. Maitland Concepts

- Basis of subjective examination and physical examination.
- Movement diagram.
- Comparison of grades of movement by maitland and kaltenborn.
- Quadrant test and locking in shoulder joint for diagnosis and treatment.
- Maitland approach to the following regions
 - a. Cervical
 - b. Thoracic
 - c. Lumbar
 - d. SI Joint

2. Combined Movements

Regular and irregular patterns in cervical, thoracic and lumbar REGIONS.

Importance in spinal dysfunctions; diagnosis and treatment using combined movements.

3. Butler Concepts

Basics of neuro anatomy, Neuro physiology and Neurodynamics.

Indication, contraindication in adverse neural tension testing and management in upper and lower extremity and spine.

4. Muscle Energy Technique

Fryette's laws of physiological spinal motion.

Application in facet joint dysfunctions, ilio sacral dysfunctions.

METs to cervical, thoracic and lumbar spine.

5. Mulligan Concepts

Treatment plane rule, rules of the concept, NAGS, SNAGS, RNAGS.

SNAGS biomechanical analysis.

Application in spinal and peripheral dysfunction

6. Cyriax Concept

Indication, techniques of application of Deep friction massage.

Indication, techniques of manipulation by cyriax concept, Elaborate the course of assessment and management in supraspinatus, tendinitis, tennis elbow and bicipital tendinitis.

7. Mckenzie Concept

Introduction to Non specific spinal pain by McKenzie

Elaboration of postural syndrome, dysfunction syndrome and its management

Derangement syndrome its classification and management

Centralization and peripheralization phenomenon

8. Myofascial manipulation

Introduction to myofascial units, sequences and spiral of upper limb, lower limb and trunk and its manipulations

References :

1. Donatelli Robert A, Micheal J. Wooden : Orthopaedic Physiotherapy ChrchillLiningstone
2. Grieve's Modern Manual Therapy: Jeffery Boyling and Gwendokn Jull, 3rd Edition
3. Principles of Manual Medicine : By Philip E Greenmon
4. James Cyriax Text Book of Orthopedic Medicine, 11th Edition
5. Maitland Peripheral Manipulation
6. Maitland Spinal Manipulation
7. Hunter's Hand Rehabilitation
8. C. Norris, Sports injuries Diagnosis and Management for Physiotherapist, Heinmans
9. Morris B. Mellion : Office Sports Medicine Hanky and Beyus
10. Singh and Malhotra: Kinanthrometry Lunar Publications
11. Suin : Psychology in Sports : Methods and application, Surjeet Publications
12. Reid : Sports injuries – Assessment and Rehabilitation WB Saunders
13. Buckner and Khan : Clinical Sports Medicine ME grawhill
14. Fascial manipulation by John V. Basmajian.

NEURO SCIENCES

PAPER – I NEURO SCIENCES FOR REHABILITATION

Total Max -80 Hrs

1. Anatomy and Physiology of nervous system
2. Normal sequential behavioral and physiological changes through out the developmental arc
3. Neuro-physiology of balance, co-ordination and locomotion
4. Neurological examination including assessment, investigations and differential diagnosis.
5. Various evaluation scales and assessment methods used in Neurological Rehabilitation.
6. Evoked potentials
 - a. Somato sensory evoked potentials
 - b. Motor evoked potentials
 - c. Visual evoked potential
 - d. Brain stem auditory evoked potentials
7. Physiotherapeutic approaches in neurological rehabilitation
 - a. Neuro Developmental Therapy
 - b. Rood's approach
 - c. Brunnstrom's movement therapy
 - d. PNF
 - e. vojta approach
 - f. Motor relearning programme
 - g. Myofacial release
 - h. Sensory integration
 - i. Constraint induced movement therapy (CIMT)
8. Neuro Dynamics
9. Biofeedback and functional electrical stimulation
10. Aids and appliances in neurological disorders, prescription, testing and training
11. Basic knowledge of drugs used for neurological conditions
12. Recent advances in neurological rehabilitation

REFERENCES:

1. Text book of Clinical neuroanatomy – Vishram Singh
2. Text book of Neuroanatomy – Inderbir Sing
3. Neuroscience for Rehabilitation – Helen Cohen, Lippincott Williams & Wilkins
4. Neurological Rehabilitation – Darcy Umphred, Mosby
5. Hand book of Neurological Rehabilitation – Greenwood & McMillan , Psychology press
6. Neurological Disabilities- Assessment and treatment – Bennet & Karnes, Lippincott Williams & Wilkins
7. Mobilisation of Nervous System – Butler
8. Clinical Neurophysiology – Binnie & Osselton, Butter worth Heinemann.

PAPER II ADVANCED PHYSIOTHERAPY IN NEUROSCIENCES

Total Max -100 Hrs

SECTION A - ADULT NEUROLOGY

1. Cerebro vascular accidents
2. Traumatic Brain injuries
3. Traumatic spinal cord injuries
4. Inflammatory and infectious disorders of the nervous system
 - a. Brain abscess
 - b. Meningitis
 - c. Encephalitis
 - d. GBS
 - e. Poliomyelitis
5. Disorders of cerebellum and basal ganglia
6. Degenerative, demyelinating and metabolic diseases of nervous system
7. Diseases of spinal cord, cranial nerves and peripheral nerves
8. Neuromuscular disorders
9. Space occupying lesions in the nervous system
10. Cognitive rehabilitation
11. Oromotor rehabilitation
12. Vestibular rehabilitation
13. Assessment and management of various neurological gaits
14. Learning skills, ADLs and functional activities
15. Bladder and bowel dysfunction and its rehabilitation
16. Rehabilitation following disorders of special senses and perception
17. Community based rehabilitation for neurological dysfunction
18. Disability evaluation applied to neurology

SECTION B - PEDIATRIC NEUROLOGY

1. Normal motor development
2. Reflex maturation
3. Assessment and testing of infant and child development
4. Assessment and interventions for high risk infants
5. Cerebral palsy
6. Spina bifida (Myelodysplasia)
7. Hydrocephalus
8. Brain injuries
9. Brachial plexus injuries
10. Neuromuscular disorders
11. Mental retardation
12. Down's syndrome
13. Autism
14. Developmental coordination disorder
15. Learning disabilities
16. Physiotherapy in public schools

REFERENCES:

1. Neuroscience for Rehabilitation – Helen Cohen, Lippincott Williams & Wilkins
2. Neurological Rehabilitation – Dany Umphred Mosby
3. Hand book of Neurological Rehabilitation – Greenwood & McMillan , Psychology press
4. Neurological Disabilities- Assessment and treatment – Bennet & Kames, Lippincott Williams & Wilkins
5. Functional Neuro rehabilitation through the life span – Bertoti, F.A Davis
6. Pediatric Physiotherapy – Tecklin, Lippincott Williams & Wilkins
7. Physical therapy for children – Campbell, Saunders
8. Treatment of cerebral palsy and motor delay – Sophie Levitt, Blackwell
9. Paraplegia and Tetraplegia – Brombley, Churchill Livingstone
10. Neurological Rehabilitation – optimizing motor performance – Carr and Shepherd, Elsevier.

CARDIO PULMONARY SCIENCES

PAPER – I CARDIO-PULMONARY SCIENCES & WOMEN’S HEALTH

Total -80 Hrs

SECTION A – CARDIO PULMONARY SCIENCES

1. Anatomy & physiology of cardio vascular & respiratory system
2. Intrauterine development and age related changes of cardio pulmonary system & difference between adult & Pediatric cardio pulmonary systems
3. Biomechanics of respiration
4. Epidemiology, symptomatology & pathophysiology of cardio- respiratory and peripheral vascular disorders
5. Cardiopulmonary manifestation of systemic conditions
6. Clinical assessment, rationale of laboratory investigations & differential diagnosis of cardiopulmonary & vascular disorders
7. Evaluation of cardiopulmonary disorders
 - a. Measurement & documentation
 - b. Pulmonary function test (PFT)
 - c. Arterial blood gas analysis (ABG)
 - d. ECG
 - e. Radiological finding (X rays, angiography, PET scan, Echocardiography, halter monitoring, CT, MRI)
8. Risk factors & preventive measure in cardiopulmonary conditions
9. Evaluation of peripheral vascular disorders (blood flow studies, temperature plethysmography, ANS dysfunction testing)
10. Pharmacology in cardiopulmonary & vascular disorders & its effect on exercise.

SECTION B – WOMEN’S HEALTH

1. Women’s reproductive system anatomy & physiology
2. Diagnosis & treatment in gynecological disorders & physiotherapy intervention following surgeries
3. Physiotherapy for antenatal and postnatal care

4. Physiotherapy for high risk pregnancy
5. Diagnosis & treatment of musculoskeletal pain & dysfunction during pregnancy & post menopause
6. Physiotherapy care during labour
7. Treatment of incontinence & pelvic floor dysfunction

REFERENCES :

1. CASH textbook of general medicine and general surgery for physiotherapist :2nded.
2. Cash textbook of chest heart and vascular disorders for physiotherapist .
3. Physiotherapy in obstetrics and gynecology: Margaret polden
4. Physiotherapy for respiratory and cardiac problems : Jennifer Pryor 3ed
5. Textbook of medical physiology – Guyton and Hall
6. Physiotherapy in respiratory care: Shapiro
7. Physiotherapy in respiratory care : Alexandra Hough
8. Women's health: text book for physiotherapist : Ruth sapsford
9. Crofton and Douglas's Respiratory Diseases: 5th ed
10. ECG made easy
11. Chest X Rays: Krathikeyan
12. Essentials of cardio pulmonary physical therapy
13. Cardio pulmonary physical therapy: Scott Irwin

**PAPER – II ADVANCED PHYSIOTHERAPY IN
CARDIOPULMONARY SCIENCES**

Total -100 Hrs

SECTION – A – CARDIO PULMONARY REHABILITATION

1. Cardiopulmonary physiotherapy interventions
 - a. Body positioning and breathing exercises
 - b. Mobilization
 - c. Physiological basis and clinical application of airway clearance techniques & cough reflex & training
 - d. Lung expansion techniques
 - e. Facilitating ventilation pattern and breathing strategies
 - f. Respiratory muscle training
 - g. Exercise tolerance testing & stress testing with training for cardiopulmonary dysfunctions
 - h. Patient education
 - i. Complementary therapies in cardiopulmonary physiotherapy (Manual therapy, mind/body intervention, movement awareness, energy work, bioelectromagnetics)
2. Physiotherapy management following general medical and surgical conditions
3. Physiotherapy management in obstructive and restrictive lung disorders
4. Pulmonary rehabilitation
5. Physiotherapy management following congenital and acquired heart disease
6. Cardiac rehabilitation (conservative and post operative management)
7. Physiotherapy in peripheral vascular disorders following conservative medical & surgical management
8. Cardio pulmonary physiotherapy for special cases
 - a. Neonatal and pediatric patient
 - b. Aging patient
 - c. Heart and lung transplant patient
9. General principles of exercise prescription for health promotion and fitness and exercise prescription for special population

- a. Diabetes mellitus
 - b. Obesity
 - c. Hypertension
 - d. Renal failure
10. Community Based Rehabilitation in cardiovascular and respiratory conditions
 11. Recent advances in cardio respiratory physiotherapy.

SECTION – B – CRITICAL CARE REHABILITATION

1. Cardio respiratory emergencies and management principles
2. Intensive care unit (concept and set up)
3. Equipments for advanced methods of life support
4. Patient monitoring
5. Artificial airways
6. Ventilator management
7. Oxygen therapy
8. Cardiopulmonary Resuscitation
9. Physiotherapy management of various conditions in ICU (adult, pediatric & neonatal)
10. Ethical considerations in intensive care

REFERENCES:

1. Chest physiotherapy in ICU : Colin Mckenzie
2. Mechanical ventilation :Mckintyre
3. Exercise and Heart
4. Exercise testing and prescription for special cases: James skinner
5. Pulmonary Rehabilitation : Alfred fisher
6. Cardiac Rehabilitation: Nanette Wenger
7. Multidisciplinary approach to breathing patterns : Leon chaitow
8. Advances in Cardiopulmonary Rehabilitation: Jobin
9. Essentials of cardiopulmonary exercise testing: Myers
10. Cardio vascular and pulmonary physical therapy: William Deturk
11. Egan’s Fundamentals of Respiratory care: Robert Wilking 7th ed
12. Principles and Practice of non invasive cardio vascular monitoring: Bernard hayes
13. Cardiovascular and pulmonary physical therapy :Elizabeth Dean 4th ed

PAEDIATRICS

PAPER I- GENERAL PAEDIATRIC PHYSIOTHERAPY

Total Hrs: 80

1. Maturation, patho-physiological & recovery process in the CNS.
2. Analysis and classification of paediatric disorders.
3. Self treatment, management and exercise prescription for home programme, and documentation.
4. Exercise testing & prescription in pediatrics
5. Evaluation, diagnosis & management of Paediatric condition.
6. Rationale of basic and advanced investigative procedures with differential diagnosis.
7. Neonatal care, risk babies and early intervention.
8. Equipments, assessment & treatment in neonatal & pediatric intensive care units.
9. Pain, assessment & management in children
10. Rehabilitation of paediatric musculo-skeletal disorders.
11. Epidemiology, symptomatology, patho-physiology and management of paediatric cardio-respiratory disorders, Paediatric oncology & burns.
12. Congenital neurological, musculo-skeletal and cardio-respiratory disorders, assessment and management.
13. Learning skills, A.D.L and functional activities.
14. Psychiatry in paediatrics.
15. Role of Physical therapy in public and special schools.

Reference Books

1. Brunstroms Clinical Kinesiology, Smith Laura K et al.
2. Clinical Skills in Neurology, Harrison Michael J G.
3. Clinical Neurophysiology, Binnie Colin D.
4. Clinical neurology and neurosurgery, Kitchen Neil.
5. DeJong's The Neurologic examination, 6thed.
6. Early Diagnosis and therapy in cerebral palsy, Scherzer Alfred I.
7. Examination and diagnosis of musculoskeletal disorders, *Castro William H M.*
8. Functional Neuro rehabilitation, Bertoti Dolores B.

9. Hand book of neurological rehabilitation, Greenwood Richard J.
10. Mechanical ventilation, MacIntyre Neil R.
11. Motor control and learning, Schmidt Richard A.
12. Neurological and neurosurgical Intensive care, Ropperallan H.
13. Neuroscience for rehabilitation, Helen Cohen.
14. Neurological rehabilitation, Umphred Darcy A.
15. Neurological disabilities, Bennet Susan E.
16. Neurological Physiotherapy, Edwards Susan
17. Neurological differential diagnosis, Pattern John.
18. Physiotherapy and growing child, Burns Yvonne R.
19. Physiotherapy for respiratory and cardiac problems in adult and paediatrics, Jennifer A Prayer, 4thed.
20. Physical therapy for children, Campbell Suzann K.
21. Therapeutic Exercise in Development Disabilities, Connolly Barbara H.
22. Treatment of cerebral palsy and motor delay. Levitt Sophie.

MANUAL THERAPY

****PAPER – I GENERAL PHYSIOTHERAPY IN ORTHOPEDICS AND SPORTS)**

Paper II- ADVANCED PRACTICE IN MANUAL THERAPY

(Total - 100 hrs).

1. Introduction to Manual Therapy.

History, Background and concepts of Manual therapy, comparing Grades of moments (Maitland, Cyriax&Kaltenbron)

2. Clinical Reasoning.

Surface anatomy, Palpation, Assessment, differential diagnosis and treatment planning

3. Biomechanics of different tissues & movement analysis.

4. PAIN – Theories of pain, Modulation, Causes, Presentation, Assessment, Differential Diagnosis and principles of management.

5. MAITLAND'S Concept.

- Basics of Subjective and Physical Examination
- Movement diagram
- VBI testing
- Quadrant testing.
- Instability Testing.

Maitland's Concepts for Various Joints.

- Cervical, Thoracic, Lumbar, SI.
- Disc pathologies.
- Peripheral Joints.
- Home Programme.
- **HVLT**

6. Combined Movements (B.C.Edwards).

- Regular and Irregular pattern in Cervical, thoracic, and Lumbar region.

- Importance of Combined Movements in spinal dysfunction diagnosis and treatment.
- Home Programme.

7. Mulligan's concept.

- Concept of **NAG, SNAGS, RNAGS, MWM**
- Mechanical Basis of SNAGS.
- Application of concepts in spinal and peripheral dysfunction.
- Current trends in Mulligan concept
- Home program

8. McKenzie concepts.

- Concepts
- Postural Syndrome, Dysfunction Syndrome and Derangement Syndromes.
- Approaches to Cervical, Thoracic and Lumbar spine.
- Home program

9. Muscle Energy Technique.

- *Fryette's Laws* of physiological spinal motion
- Segmented vertebral dysfunction
- NRS, ERS, FRS
- Technique and its application
- Home program

10. CYRIAX.

- Selective Tissue Tension Test.
- Indication, Technique and Application of Deep Friction Massage. .
- Indication, Assessment and Management Soft Tissue Lesions.
- Merits and Demerits of Cyriax concepts in the management & soft tissue lesions.
- Home program.

11. Myo Fascial Release.

- Concept

- Indications
- Application techniques

12. Butler's Neural Mobilization.

- Basics, Neuro Anatomy/Neuro dynamics
- Indications and contraindication
- Adverse neural testing
- Home program

13. Positional Release Technique.
14. Trigger Point Therapy.
15. Tapping Techniques
16. Recent Advances in manual therapy.
17. Integrated Approaches in Manual Therapy.
18. Adjunct therapy to manual therapy.
19. Ethical Issue in Manual Therapy Practice.
20. Clinical Record Maintenance in Manual Therapy.
21. Evidence Based Practice in Manual Therapy.
22. Scope of Manual therapy in Veterinary
23. Scope of Manual therapy in Dentistry

Reference Books

1. Athletic taping and Bracing, *Pessin David H.*
2. Basic Biomechanics of the Musculoskeletal system, *Victor H. Frankel and Margareta Nordin*, 3rd Edition.
3. *Chaitow* - Muscle energy technique, Management of common Musculoskeletal disorders, 3rd Edition.
4. Cervical and Thoracic Spine Mechanical diagnosis and therapy- *R A McKenzie.*
5. Clinical applications of Neuromuscular techniques, *Leon Chaitow*-2nd ed **Vol 1&2**
6. Clinical Reasoning, *Cheryl Methingly.*
7. Complementary therapies for physiotherapists, *Charman Robert A.*
8. Diagnostic imaging for Physical therapist- *James S*
9. Differential diagnosis for Physical therapists screening for referral, *Goodman*, 4th ed.

10. Electrotherapy, *Kitchen Sheila, 11th edition.*
11. Evidence Based Rehabilitation, *Law mary.*
12. Fascial Manipulation for musculoskeletal pain, *Stecco Luigi.*
13. Functional soft tissue examination and treatment by manual methods, *Hammer Wassen I.*
14. Functional Anatomy; Musculoskeletal Anatomy, kinesiology and Palpation for Manual therapist- *Christy Cael.*
15. *Grieve's* modern manual therapy
16. Joint mobilization and Manipulation, *Edmond Susan L.*
17. Kinesiology movement in the context of activity- *David Paul Greene, 2nded*
18. Lumbar Spine Mechanical diagnosis and therapy- *R A McKenzie*
19. *Maitland's* – Peripheral manipulation 4th Edition
20. *Maitland's* – Vertebral manipulation 7th Edition
21. Management Principles for Physical therapists, *Noose Larry J.*
22. Manual Therapy, NAGs, SNAGs, MWM etc by *Brian R Mulligan, 5thedn.*
23. Manual therapy for Peripheral Nerves- *Jean Pierre Barral.*
24. Manual therapy in Children, *Biedermann Heirer.*
25. Manual of Combined Movements, *Edwards Brain C.*
26. Mobilization of the Nervous system, *David S Butler.*
27. Modalities for therapeutic intervention, *Susan L Michlovitz, 4thed.*
28. Musculoskeletal Physical examination, *Malanga Gerald.*
29. Neuro Musculoskeletal Examination and Assessment, *Nicola J. Petty, Ann P. Moore*
30. Orthopaedic Physical Therapy, *Donatelli Robert A, Micheal J Wooden*
31. Orthopaedic Neurology- a diagnostic guide to neurologic level, *Stanley Hoppen Field.*
32. Palpation Skills, *Leon Chaitow.*
33. Physical therapy ethics, *Gabard Donald L.*

34. Positional Release Techniques, *Leon Chaitow*.
35. Principles of Manual Medicine, *Philip E Greenman*. 4th Edition.
36. Reflexology, *Beryl Crane*.
37. *Reid et al* – Sports injury assessment and rehabilitation.
38. Text book of Orthopaedic Medicine, *James Cyriax*, 11th Edn.
39. Therapeutic electrophysical agents evidence behind Practice-*Alain Yvan Belangar*, 2nd edition.
40. TMJ joint dysfunction –Essentials, *Jagger R G*.

REFERENCE JOURNALS

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 Exercise
11. Pediatric Physical Therapy
12. Journal of Neurologic Physical Therapy
13. Journal of Rehabilitation Research and Development
14. Journal of Cardio Pulmonary Rehabilitation
15. Archives of Physical Medicine and Rehabilitation
16. Journal of Neurological Sciences
17. Clinical Rehabilitation
18. Spine
19. Manual Therapy
20. Gait and Posture

****Paper I is common for two specialties**

- 3. MPT in Orthopaedics&Sports and**
- 4. MPT in Manual therapy**

CHECK LIST - 1

MODEL CHECK-LIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS

Name of the Student :

Name of Faculty / Moderator :

Date :

Sl. No	Items for observation during presentation	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Article chosen was					
2.	Extent of understanding of scope & objectives of the paper by the candidate					
3.	Whether cross references have been consulted					
4.	Whether other relevant publications consulted					
5.	Ability to respond to questions on the paper / subject					
6.	Audio - Visual aids used					
7.	Ability to defend the paper					
8.	Clarity of presentation					
9.	Any other observation					
	Total Score					

CHECK LIST – 2

MODEL CHECK-LIST FOR EVALUATION OF SEMINAR PRESENTATIONS

Name of the Student :

Name of Faculty / Moderator :

Date :

Sl.No	Items for observation during presentation	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Whether other relevant publications consulted					
2.	Whether cross references have been consulted					
3.	Completeness of preparation					
4.	Clarity of presentation					
5.	Understanding of subject					
6.	Ability of answer questions					
7.	Time scheduling					
8.	Appropriate use of Audio - Visual aids					
9.	Overall performance					
10.	Any other observations					
	Total Score					

CHECK LIST - 3

MODEL CHECK-LIST FOR EVALUATION OF CLINICAL WORK

(To be completed once a month by respective unit heads)

Name of the Student :

Name of Faculty / Observer :

Date :

Sl.No	Points to be considered	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Regularity of attendance					
2.	Punctuality					
3.	Interaction with colleagues and supportive staff					
4.	Maintenance of case records,					
5.	Presentation of cases during rounds					
6.	Investigations of work up					
7.	Bedside manners					
8.	Rapport with patients					
9.	Treatment approaches & techniques					
10.	Overall quality of clinical work					
	Total Score					

CHECK LIST - 4

EVALUATION FOR CLINICAL CASE PRESENTATION

Name of the Student :

Name of Faculty / Moderator :

Date :

SL.No	Points to be considered	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Completeness of History					
2.	Whether all relevant points elicited					
3.	Clarity of presentation					
4.	Logical order					
5.						
6.	Accuracy of general physical examination					
7.	Whether all physical signs missed or misinterpreted					
8.	Special tests					
9.	Investigations required Special investigation					
10.	Diagnosis - Whether it follows logically from history & findings					
11-	Differential diagnosis					
12.	AIMS					
13.	MEANS					
14.	Treatment Techniques					
15.	Others					
	Grand Total					

CHECK LIST - 5

MODEL CHECK-LIST FOR EVALUATION OF TEACHING SKILL PRACTICE

Name of the Student :

Name of Faculty / :

Date :

Sl.No.	Details	Strong Point	Weak Point
1.	Communication of the purpose of the talk		
2.	Evokes audience interest in the subject		
3.	The introduction		
4.	The sequence of ideas		
5.	The use of practical examples & /or illustrations		
6.	Speaking style (enjoyable, monotonous, etc., -Specify)		
7.	Attempts audience participation		
8.	Summary of the main points at the end		
9.	Gives references		
10.	Asks questions		
11.	Answer questions asked by the audience		
12.	Rapport of speaker with his audience		
13.	Effectiveness of the talk		
14.	Uses Audio visual aids appropriately		

CHECK LIST - 6

MODEL CHECK LIST FOR DISSERTATION PRESENTATION

Name of the Student :

Name of Faculty :

Date :

Sl. No	Points to be considered	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Interest shown in selecting a topic					
2.	Appropriate review of literature					
3.	Discussion with guide & other faculty					
4.	Quality of protocol					
5.	Preparation of proforma					
6.	Grand Total					

CHECK LIST - 7

CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE

Name of the Student :

Name of Faculty :

Date :

SLNo	Items for observation during presentation	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1.	Periodic consultation with guide					
2.	Regular collection of case material					
3	Depth of analysis / discussion					
4.	Departmental presentation of findings					
5.	Quality of final output					
6.	Others					
7.	Total Score					