

**MASTER OF PHYSIOTHERAPY (MPT)
(2 Year Degree Course)**

REGULATION & CURRICULUM



KADI SARVA VISHWAVIDYALAYA

**CHANCHALBEN MAFATLAL PATEL COLLEGE
OF PHYSIOTHERAPY**

**Civil Hospital Campus,
Sector 12, Gandhinagar**

RULES OF DEGREE OF THE MASTER OF PHYSIOTHERAPY

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PHYSIO 1 :- THE COURSE

The Master of Physiotherapy Course will be a regular full time course of 2 years duration. During an academic year, a candidate enrolled in the program shall not appear in any other examination of the university enrolled in/or any other university. Any break in the career, power of extension of the course and the fixation of the term will be vested with the university.

PHYSIO 2 :- NOMENCLATURE

The course will be referred to as a Master of Physiotherapy.

PHYSIO 3 :- OBJECTIVES OF THE COURSE

1. To prepare a postgraduate student towards professional autonomy with self-regulating discipline.
2. To form base of professional practice by referral as well as first contact mode using evidence based practices.
3. To impart research basis in order to validate techniques & technologies in practice of physiotherapy.
4. To acquaint a student with concept of quality care at the institutional as well as at the community levels.
5. To inculcate appropriate professional relationship in multi- disciplinary set up, patient management & co-partnership basis.
6. To prepare students to address problems related to health education & community physiotherapy.
7. To practice the concept of protection of the community during referral as well as first contact practice.
8. To incorporate concept of management in physiotherapy.
9. To provide experience in clinical training & under graduate training partly.
10. To provide honest competent & accountable physiotherapy services to the community.

PHYSIO 4 :- ELIGIBILITY CRITERIA FOR ADMISSION

- 4.1 The candidate must have completed the recognized B. Physiotherapy or equivalent course and compulsory rotating internship before the date of interview. All candidates shall have to submit the documentary proof from the Principal/ Dean of college regarding the date of completion of internship along with the application, failing which their application shall be summarily rejected. However, candidate should have to produce full internship completion certificate at the time of interview, failing of which, candidate will not be eligible for admission.
- 4.2 A candidate has to appear in competitive examination for admission to Post graduate Physiotherapy courses held by the University and admission to P.G. Course will be given as per merit of entrance test.
- 4.3 Total seats of PG Physiotherapy will be filled up by the Admission Committee of the University.
- 4.4 For this purpose selection will be done once in each academic year.
Academic year 1st May to 30th April of next year. First Academic Term: 1st May to 31st October.
Second Academic Term: 1st November to 30th April Next Year.
- 4.5 Selection: Selection of eligible candidates will be done category wise on the basis of merits.
- 4.6 If candidate scores equal in entrance exam, Preference shall be given to Candidates graduating from this University than to the Candidates

graduating from any other University located in Gujarat State than from any other University located outside Gujarat State, in India, and have completed the compulsory internship.

4.7 The candidate will be given a choice of subject and Post Graduate Teacher according to his merit level. He / she will have to choose Registration out of the available choice in different subjects under particular teacher at his merit level.

4.8 Seats can be utilized in the same academic year only and vacancy in any one academic year cannot be utilized in subsequent academic year.

4.9 University will prepare the category wise seat list in each subject. 7% of seats will be reserved for the candidates belonging to Scheduled Caste, 15% of seats will be similarly reserved for ST candidates and 27% of seats will be reserved for candidates belonging to Socially and Educationally Backward Class (SEBC) students including widows and orphan children. The student desiring to take admission under any category will have to submit the certificate as per state policy of current year subject to change from time to time.

4.10 These seats are reserved for the candidates belonging to SC/ ST & SEBC recognized as such in the State of Gujarat and not those or whose parents have migrated from other State to Gujarat State.

4.11 Candidates seeking admission under reserved category will have to produce the caste certificate from the competent authority as

prescribed by the Govt. of Gujarat from time to time, and submit it along with the application. The candidates will not be allowed to change the caste category thereafter.

4.12 In case of doubt or discrepancy about the caste certificate, decision of the Director, Social Welfare, Gujarat State, shall be final.

4.13 Application: University conducting the admission procedure will issue notice inviting applications for admission under these rules. Candidates are requiring to submit the prescribed forms duly completed with receipt of entrance examination fee and within the prescribed time limit.

4.14 The application form should be complete in all respects before submission, no alternator or addition will be permitted later.

4.15 Every candidate will be issued a receipt when he/she submits his/her application form. This must be preserved for all future references and produced when asked for.

4.16 Counseling and entrance examination date/place will be notified in the notice inviting applications, no separate notice or individual letters will be sent. The applicant should remain present on the day and time fixed for the same.

4.17 If any of the statements made in the application form or any information/ document supplied by the candidate in connection with his application for admission is later on found to be false or incorrect or misleading or if it is found that the candidate has concealed any

information / fact in connection with his application, his admission shall be cancelled without any notice thereof, fees forfeited and he / she may be expelled and prosecuted.

PHYSIO 5 :- Determination of the Merit Order

5.1 Entrance Examination:

5.1.1. There will be one paper of 2 hours duration for Master of Physiotherapy courses containing 100 multiple choice questions (MCQs) based on Bachelor in Physiotherapy syllabus and according to the syllabus weight age.

5.1.2 The questions will be single response objective type. Each answer with correct response shall be awarded two marks. Zero mark will be given for the question not answered. More than one answer indicated against a question will be deemed as incorrect response and will be awarded zero mark. It is responsibility of the student to do specific prescribed mark against the answered question failing of which, question will be deemed incorrect response and will be awarded zero mark.

5.1.3 The examination shall be conducted in English medium only.

5.1.4 There is no provision for rechecking / re-evaluation of the answer sheets and no query in this regard will be entertained.

5.1.5 The examination will be conducted as per programme shown in notice.

- 5.1.6 Candidates are expected to take their seats 15 minutes before the commencement of the examination. Please note that the candidate will not be allowed entry into the examination hall or for the allotment by personal appearance without valid identify card in original.
- 5.1.7 Candidate who comes after 15 minutes of the commencement of the examination shall not be permitted to appear in the examination.
- 5.1.8 No Candidate shall be allowed to carry any textual material, printed or written, bits of papers or any other material except the Identity card (without envelop) inside the hall. If a candidate is found to be copying/ conversing with other candidates/ to have in his/ her possession papers, notes or books he/ she shall be disqualified from taking that Examination.
- 5.1.9 No candidate shall be allowed to the leave the examination hall before the completion of examination. Question paper (even if answered) must be returned before leaving the examination hall.
- 5.1.10. The candidate shall maintain silence and attend to his paper only. Any disturbance in the examination hall shall be deemed as misbehavior and the candidate shall forfeit the right to continue to write in the examination. The decision of the Center in charge shall be final and conclusive.
- 5.1.11. Cellular phones, Pagers, Calculators etc. are strictly prohibited in Examination hall.

- 5.1.12. Canvassing directly or indirectly for the allotment of seats or adjustments thereafter would disqualify the candidate for admission on the basis of this examination influencing the staff by unfair means would lead to serious consequences for all concerned. The candidates or their relatives visiting university office/ officials for seeking change of the allotment would face disqualifying, since such visits would be treated as trespassing.
- 5.1.13 If the candidate obtains equal merit as per rule 4.6, preference will be given to the candidate based upon grand total of all BPT exams after deduction of 1.5 marks for each unsuccessful trial in bachelor of physiotherapy examination.
- 5.1.14 The Merit List will be placed on the notice board of the University and college.
- 5.1.15 The sequence of counseling for selection and admission will be as per regulations.
- 5.1.16 All PG courses are full-time and the candidate shall not indulge in private practice or employment of any nature (Part-time or full-time, paid or stipendiary or unpaid) during the course. If the candidate is employed, he/ she shall have to produce proof that he/ she has left the service or taken leave for full period of course before he/ she is given admission order. No concession will be given regarding joining period of 7 days counted from the day of selection. If he/ she fails to produce the above proof within 7 days, his/ her admission

shall stand cancelled. If violation of this condition is detected any time after the admission, his admission shall be cancelled without giving any notice and he/ she will have to apply as fresh candidate.

5.1.17 The selected and admitted candidate will have to join within stipulated time of 7 days. If he/ she fails to do so and if he leaves before completion of the course, he/ she will lose his admission (and registration) and will have to apply as fresh candidate.

5.1.18 For granting of each term candidate shall have attended minimum 80% of the total number of the days in each term.

5.1.19 If any Post Graduate student is found absent for more than 30 days without permission of concerned authority, his/ her admission or registration in P.G. course will be cancelled without any notice, thereof fees and deposits will be forfeited and he/ she not be eligible to apply in future.

5.1.20 The University reserves the right to introduce any new Rule or Regulations or to make changes in any of the existing Rules or Regulations at any time to deal with diverse problems arising out of infinite variety of situations.

PHYSIO 6 :- INTAKE OF STUDENTS

The intake of students to the course shall be in accordance with the ordinance in this behalf. The guide student ratio shall be 1:3. The intake of students to the course

shall be once in a year. No postgraduate seat left unfilled in an academic year shall be carried forward to the next or subsequent academic years.

PHYSIO 7 :- DURATION OF THE COURSE

The duration of MPT course will be of minimum 02 years & maximum extension of the course duration will be as per UGC criteria subject to change from time to time

PHYSIO 8 :- MEDIUM OF INSTRUCTION

English will be the medium of instruction for the subjects of study, text books & for the examination of the MPT course.

PHYSIO 9 :- COURSE OF THE STUDIES

The course of study, subjects & teaching schedule for I & II year MPT course is shown separately in Table 1 & 2.

Table- 1: MPT First Year (First 12 Months)

Sr.No	Subjects	Hours
1	Basic Sciences	
1A	Work & Exercise Physiology	80
1B	Electro Physiology	20
1C	Biomechanics	80
1D	Research Methodology & Biostatistics	70
1E	Educational Technology	40
1F	Ethics Management & Planning	40
2	Physical & Functional Diagnosis	130
3	Clinical	1080
4*	Seminars, Journal reviews, Field work, Case presentations	60
5 ⁺	Dissertation & Microteaching	100
Total		1700

*Subjects not for university examination.

⁺Subjects examination will be at the end of second year.

Table- 2: MPT Second Year (13-24 Months)

Sr. No	Subjects	Hours
1	Advanced Physiotherapeutics	160
2	Specialization Subject (Theory-150 Hours & Practical – 150 Hours)	300
3	Clinical	1080
4	Dissertation & Microteaching	110
5*	Seminars, Journal reviews, Field work, Case presentations	50
Total		1700

Specialization: (Any One)

1	Orthopaedics
2	Neuro Sciences
3	Cardio Respiratory Disorders
4	Community Health
5	Sports Sciences
6	Paediatrics

PHYSIO 10 :- METHOD OF TRAINING

The training of post graduate for MPT Degree shall be on a full time pattern with graded responsibilities in the management & treatment of patients entrusted to his/her care. Training should include involvement in laboratory, experimental work & research studies. The participation of students in all facets of educational process is essential. Every candidate should take part in seminars, group discussion, clinical rounds, case demonstration, clinics, journal review meetings & other continuous education activities. Every candidate should be required to participate in the teaching & training program of under graduate students.

PHYSIO 11 :- MONITORING PROGRESS OF STUDIES (INTERNAL MONITORING)

It is essential to monitor the learning progress of each candidate through continuous appraisal & 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 the participation of the students in various teaching/learning activities. It may be structured & assessment be done by using checklists that assess various aspects.

Work Diary :-

Every candidate shall maintain a work diary & record his/her participation in the training programs conducted by the department such as journal reviews, seminars etc. Special mention may be made of the presentation by the candidate as well as details of the clinical or laboratory procedures, if any, conducted by the candidate. The work diary shall be scrutinized & certified by the guide & head of the institution & presented in the university examination.

Periodic Tests :-

The college may conduct 1 preliminary examination prior to university examination. The tests may include written theory papers, practical, viva voce & clinical in the pattern of university examination. Records & marks obtained in such tests will be maintained by the head of the institution.

PHYSIO 12 :- ATTENDANCE

A candidate is required to attend a minimum of 80% of training & of the total classes conducted during each academic year of the MPT course. Provided further, leave of any kind shall not be counted as part of academic term without prejudice to minimum 80% of training period every year. Any student who fails to complete the course in this manner shall not be permitted to appear for the university examinations.

PHYSIO 13 :-

A) TEACHING & LEARNING EXPERIENCE

1	Journal Review Meeting	Minimum six in 2 years
2	Seminars	Minimum four in 2 years
3	Clinical Presentations	Minimum 20 cases in 2 years
4	Special Clinics	Minimum 20 hours in 2 years
5	Inter Departmental Meetings	Minimum five in 2 years
6	Community work, Camp/ Field visits	Minimum four in 2 years
7	Dissertation Work	Minimum 110 hours in 2 years
8	Participation in Conferences & Paper Presentation	Minimum two in 2 years
9	Teaching Activities- UG teaching	Minimum 100 hours in 2 years

B) GRADED RESPONSIBILITY IN CARE OF PATIENTS AND OPERATIVE WORK.

(Structured training schedule for clinical & elective subjects only)

Category	1 st Year MPT	2 nd Year MPT
O	20 cases	20 cases
PA	50 cases	50 cases
PI	20 cases	30 cases

Key :O : Observer

PA : Performed procedure under the direct supervision of a senior Physiotherapist.

PI : Performed independently.

PHYSIO 14 :- DISSERTATION

Every candidate pursuing MPT degree course is required to carry out work on a selected research project under the guidance of a recognized post graduate 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 & techniques. It includes identification of a problem, formulation of a hypothesis, search & review of literature getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results & drawing conclusions. Synopsis should be submitted within 03 months & if required candidate can change the synopsis within 06 months from the period of admission. The synopsis shall be sent through the proper channel. Such synopsis will be reviewed & the university will register the dissertation topic. No change in the dissertation topic or guide shall be made without prior approval of the university. The dissertation should be written under the following heading.

1. Introduction
2. Aims or objectives of study
3. Review of literature
4. Material & methods
5. Results
6. Discussion
7. Conclusion
8. Summary
9. References
10. Tables
11. Annexure

The written text of dissertation shall not be less than 50 pages & shall not exceed 100 pages excluding references, tables, questionnaires & 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 institution shall certify the dissertation.

Four copies of dissertation thus prepared shall be submitted to the registrar (evaluation), 3 months before final examination on or before the dates notified by the university.

The examiners appointed by the university shall evaluate the dissertation. Approval of dissertation work is an essential precondition for a candidate to appear in the university examination. Two evaluators (examiners) apart from the guide shall value the dissertation. One of the evaluator is external from outside University. The other one shall be internal examiner. In case of in availability of internal examiner, the dissertation will be sent to other external evaluator. The evaluation report will mention any of the criteria whether the dissertation is accepted/accepted with minor corrections/rejected. Acceptance from any one evaluator other than the guide will be sufficient for the candidate to be eligible to take up the university examination.

PHYSIO 15:- GUIDE

The academic qualification and teaching experience required for recognition by his university is as per the criteria for recognition of MPT teachers for guides as per IAP. Guide should be of the same elective subject.

Criteria for recognition of MPT teacher/ Guide:

1. MPT with five years teaching experience after completion of MPT degree working on a full time position at an institution recognized by IAP and GSCPT.
2. Notwithstanding above, in view of acute shortage of teachers, The Teachers having three years teaching experience after MPT and working on a full time, basis can be considered as PG teachers.

PHYSIO 16 : - CHANGE OF GUIDE

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

PHYSIO 17 : - SCHEDULE OF EXAMINATION

- a) The examination for MPT course shall be held at the end each academic year.
- b) There shall be two university examination sessions in an academic year i.e. in the month of April and October approximately.

PHYSIO 18 : - SCHEME OF EXAMINATION

The examination for the degree of Master of Physiotherapy will be taken by theory, practical and viva-voce.

Written Examination (Theory)

Each question paper will be of three hours duration and each paper carrying 100 marks for following subjects:

1. Basic Science
2. Physical and Functional Diagnosis
3. Advanced Physiotherapeutics
4. Specialization

Scheme of Examination

Section:1) Long Essay (2 Questions) (2 x 20) 40 marks

Section:2) Short Essay (6 Questions) (6 x 10) 60 marks

All questions are compulsory in theory paper. No options will be offered.

The theory examination shall be held sufficiently earlier than practical examination.

Particulars of theory and clinical examination distribution of marks are shown in table below:

MPT FIRST YEAR

Sr.No	Subject	Total Marks
1	Theory: Basic Sciences	100
2	Theory: Physical & Functional Diagnosis	100
3	Practical: Clinical Examination (Specialization minor case, Non Specialization minor case, Spots and Viva)	150
Total		350

MPT SECOND YEAR

Sr.No	Subject	Total Marks
1	Theory: Advanced Physiotherapeutics	100
2	Theory: Specialization	100
3	Practical: Clinical Examination (Specialization Major Case & Viva)	150
	Practical: Dissertation & Microteaching	100
Total		450

Practical Examination

1. Clinical Examination (300 Marks)

All cases should be on patients and not on models

MPT First Year:

Examination	Marks
Specialization minor case, Non Specialization minor case & Spots & Viva Voce	150 (50 Marks Each)

Day 1: Non Specialization (Minor) case, Specialization (Minor) case and Viva & spots.

MPT Second Year

Examination	Marks
Specialization major case & viva	150

2. Dissertation & Microteaching (100 Marks)

Examination	Marks
Dissertation & Microteaching	100 (50 Marks Each)

Day 1: Specialization (Major) case and Viva

Day 2: Micro teaching & Dissertation presentation

PHYSIO 19: - EXAMINERS

All examiners shall be recognized postgraduate teachers with three years teaching experience.

Total four examiners: two external & two internal for 1st year MPT examination shall remain common for all the candidates.

In 1st year MPT examination examiners will be set as per following order:

Specialization	Number
Orthopaedics	1
Sports	1
Cardio Respiratory	1
Neurology/Paediatrics	1

Total four examiners: two external & two internal for 2nd year MPT examination will be as per specialization. In case of unavailability of external/internal examiner related to concerned specialization, examiner with other specialization can be considered. An external examiner must be a faculty of physiotherapy, preferably be from out of university and ordinarily may be appointed for not more than 3 years consecutively. In first year MPT theory examination one internal and one external examiner shall ordinarily be responsible for paper setting and paper checking. In second year MPT theory examination as per specialization one internal and one external examiner shall ordinarily be responsible for paper setting and paper checking apart from Advance Physiotherapeutics where one internal and one external examiner shall remain common irrespective of specialization.

PHYSIO 20 :- CRITERIA FOR DECLARING AS PASS IN UNIVERSITY EXAMINATION

- (a) A candidate is declared to have passed in university exam if he/she secures minimum 50% marks in Theory and Practical separately and in case if candidate fails in any of the subject in any year then candidate will have to reappear for the exam with all the subjects.
- (b) Candidate shall not be eligible to appear in second year MPT examination until he/she clears first year MPT examination.
- (c) The candidate will be awarded with the class if he/she clears both university exam in first attempt based on aggregate total of both university exams as per follow:
1. Who secures 75% and above in the aggregate marks shall be declared to have secured 'FIRST CLASS WITH DISTINCTION' provided he/she passes the whole examination in the FIRST ATTEMPT;
 2. Who secures above 60% and less than 75% in the aggregate marks shall be declared to have passed the examinations in the 'FIRST CLASS, provided he/she passes the whole examination in the FIRST ATTEMPT';
 3. Who secures above 50% and less than 60% in the aggregate marks shall be declared to have passed the examinations in the 'SECOND CLASS'; provided he/she passes the whole examination in the FIRST ATTEMPT'; and
 4. All other successful candidates who passed the examination in more than first/one attempt shall be declared to have PASS CLASS; irrespective of percent of marks secured.

PHYSIO 21 : - DEFINITION OF TRIAL

First trial is deemed to take place when the candidate is due to appear for the examination irrespective of his/ her actual appearance, provided that non- appearance is not a result of reasons beyond his/ her control. Similarly, 2nd, 3rd, etc, trials relating to subsequent examination

PHYSIO 22 :- COURSE CONTENTS

PAPER: BASIC SCIENCES

Work & Exercise Physiology:

1. Sources of Energy, Energy Transfer and Energy Expenditure at rest and various physical activities.
2. Nutrition, Body consumption, caloric balance, food for the athlete, regulation of food intake, ideal body weight, optional supply of Nutrients.
3. Metabolic consideration — VO_2 , Lactate threshold, RQ, energy expenditure in terms of calorimetry.
4. Acute effects of exercise on — Cardiovascular, Respiratory, Metabolic (aerobic & anaerobic), Thermo-regulatory, Buffer (pH), Neuromuscular- skeletal, Endocrine, Immune systems.
5. Conditioning effects (adaptations) of exercise on — Cardiovascular, Respiratory, Metabolic (Aerobic & anaerobic), Thermo regulatory, Buffer (pH) Neuromusculoskeletal (strength, power, endurance, speed, flexibility, agility, skill), Endocrine, Immune systems.

6. Body composition
7. Exercise at different altitudes.
8. Exercise at various climatic conditions.
9. Special aids to performance and conditioning.
10. Exercise prescription for health and fitness with special emphasis to cardiovascular disease, Obesity and Diabetes.
11. Principles of health promotion for Growing Children, Healthy Adults, Pregnant /Lactating females, Elderly, Sports person.
12. Aerobic and Anaerobic Exercise Training.
13. Fatigue assessment, Types, and Relevance with Exercise Tolerance tests & Training and management.
14. Fitness Testing for:
 - Aerobic & anaerobic power and capacity
 - Muscular strength and power, flexibility.
15. Obesity –exercises for weight reduction
16. Exercise and aging
17. Clinical exercise physiology
18. Physiological & physical work.
19. Ergonomic aspects of work, energy transfer, oxygen intake and oxygen debt, cardio-respiratory and thermo regulatory changes during muscular work.
20. Ergonomic aspects of exercise on oxygen, energy consumption, MET value of various exercises and activity.

Electro physiology

1. Characteristics and components of Electro therapeutic stimulation systems and characteristic and components of Electro physiological assessment devices.
2. Electrical excitability of muscle and nerve and composition of peripheral nerves.
3. A. Muscle plasticity in response to electrical stimulation.
B. Instrumentation for Neuromuscular electrical stimulation (NMES)
4. Neurobiology of afferent pain transmission and central nervous system mechanisms of pain modulation.
5. Electrical stimulation and circulation.
6. Clinical Electro physiological testing.
7. Bio-electricity (R.M.P-Action Potential)
8. Neurotransmitters. Synapse & Synaptic transmission.
9. Classification-muscle fibers, nerve fibers, motor unit.
10. Propagation of nerve impulse & physiology of muscle contraction.
11. Reflex-classification & properties.
12. Sensations-Pathways & classification.
13. Type of nerve injury & wallerian degeneration.

Bio Mechanics

1. Material properties of bones and soft tissues. Applied mechanics in the evaluation procedures.
2. Internal and external forces during posture and activities.
3. Biomechanics of respiration, circulation, hand function, peripheral joints and spine.
4. (i) Gait: - Normal Gait and its determinants - Gait parameter including temporal and spatial
 - Kinematic and Kinetic of normal human gait
 - Pathological gait
 - Running ,Stair climbing(ii) Gait Analysis :
 - Overview of normal gait analysis : kinetic and kinematic analysis; Description of some of the most commonly used types of observational gait analysis; Advantages and disadvantages of kinematic qualitative and kinematic quantitative gait analyses.
 - Gait Training, Pre ambulation programme, assistive devices and gait patterns, Recent advances in analysis of Gait.
5. Posture Control, Optimal Posture and their deviations in different planes.
6. Ergonomics and its application in working environments.

7. Methods of kinetics and kinematics investigation, Anthropometric measurements.
8. Forces, equilibrium, levers: laws, mechanical advantage, materials & properties of bones and soft tissues.
9. Analysis of functional hazards related to environment/ industry & clinical reasoning for the appropriate ergonomic advice.
10. Applied mechanics in the application of prosthesis, orthosis and mobility aids: materials, designs and bio-mechanical compatibility. Aids and appliances, adaptive functional devices to improve dysfunction.

Research Methodology and Biostatistics

1. Meaning of research, objectives, motivation & types of research.
2. Research process and criteria of good research.
3. Problems encountered by researchers in India & defining the research problem.
4. Research design & sampling design.
5. Measurement & scaling techniques. Method of data collection.
6. Processing and analysis of data. Sampling fundamentals.
7. Testing of hypothesis and Chi-square test.
8. Analysis of variance & co-variance.
9. Writing research for publication, Presenting a research report
10. Research Ethics, Plagiarism.
11. Role of computer in research.

Ethics and Administration

1. Concept of Morality, Ethics and Legality.
2. Rules of Professional conduct, Medico Legal and Moral Implications.
3. Communication skills, Client interest and Satisfaction.
4. Inter Disciplinary Relation, Co-partnership, Mutual Respect, Confidence and Communication, Responsibilities of the Physiotherapists, Status of Physiotherapist in Health Care.
5. Role of Professional in Socio Personal and Socio Economical context.
6. Need of Council Act for regulation of Professional Practice.
7. Self- Regulatory role of Professional Association.
8. Rules of Professional Conduct.
9. Role of WCPT, Various branches and special interest group of WCPT.
10. Indian association of physiotherapists: rules, regulations, framework, aims, and objectives. Physiotherapy and law. Medico legal aspects of physiotherapy, liability, negligence, malpractice, licensure, workman's compensation.
11. Administration & Marketing – personnel Policies –Communication & Contract. Administration principles based on Goal & Function at large Hospital / Domiciliary set up / Private Clinic / Academic Institution.

12. Methods of maintaining records – Budget planning.
13. Performance analysis – Physical structure, reporting system, Man P Status, Functions, Quality & Quantity of Services, Turnover – Cost benefit, Contribution.
14. Hospital as an organization - Functions and types of hospitals .
15. Roles of Physical therapist, Physical therapy Director, Physiotherapy Supervisor, Physiotherapy assistant, Physiotherapy aide.
16. Confidentiality of the Patient's status.
17. Legal responsibility.
18. Consumer protection law, health law, MCI.
19. Standards of practice for physiotherapists.
20. Liability and obligations in the case of medical legal action
21. Law of disability & discrimination

Education Technology

1. Education: aims, agencies, formal and informal education, Modern & contemporary philosophies of education, Role of educational philosophy and Current issues and trends in education
2. Concepts of teaching and learning
3. Principles and methods of teaching: Strategies & Planning of teaching, Organization, writing lesson plan, Audio visual aids, Teaching methods.
4. Curriculum committee, curriculum development for Physiotherapy, Types of curriculum, objectives, course objectives, Placing, Course placement, time allotment, Selection and organization of learning experience, Plans of courses, Rotational plan.
5. Measurement and evaluation.
6. Guidance and counseling.
7. Faculty development and development of personnel for PT services.

PAPER: PHYSICAL & FUNCTIONAL DIAGNOSIS

1. Clinical Decision Making - Planning Effective Treatment. Clinical decision making models, Team approach, Foundation for clinical decision making.
2. Principles and application of investigative and imaging techniques in Physiotherapy
 - Blood test
 - Arterial Blood Gas (ABG) analysis
 - Pulmonary Function Test (PFT)
 - Radiological examination
 - Computerized Tomography (CT)
 - Magnetic Resonance Imaging (MRI)
 - Ultrasonography (USG)
 - Electrocardiography (ECG)
 - Dope testing
3. Evaluation assessment and treatment planning strategies for musculo-skeletal, neurological, cardiopulmonary, sports specific and other physiotherapy conditions: Principles of evaluation, clinical manifestations, general and specific clinical examination.
 - A. Physiotherapy assessment of the following:
 - Range of motion (ROM)
 - Tone
 - Muscular strength and endurance

- Flexibility
- Coordination : Equilibrium & Non equilibrium test
- Sports specific skills
- Cardiac efficiency
- Sensory evaluation
- Functional Evaluation : Various scoring methods in functional assessment, Validity and reliability
- Fitness evaluation: Aerobic & Anaerobic
- Spasm
- Trigger Point
- Tender Point

B. Assessment of cognitive, perceptual dysfunctions and vestibular dysfunction.

4. Electro-Diagnosis:

- Characteristics and components of Electro therapeutic stimulation systems and Electro physiological assessment devices.
- Instrumentation for neuromuscular electrical stimulation.
- Electrical properties of muscle and nerve.
- Neurobiology of afferent pain transmission and central nervous system mechanisms of pain modulation.
- Electrical stimulation and circulation.
- Clinical Electro physiological testing: Instruments,

Techniques and

- Interpretations of Nerve conduction velocity including Repetitive Nerve Stimulation
 - Electromyography
 - Bio-feedback technique.
 - Late responses
 - Concepts of electro physiological studies in neuromuscular diseases as a diagnostic and therapeutic tool.
 - Evoked potentials – VEP, SSEP, MEP, BAEP
5. Psychological aspects of rehabilitation in disability: Psychological tests.
 6. Developmental Screening
 - (a) Factors Motor control assessment
 - (b) Motor control theories/mechanism
 - (c) Patterns of normal development
 - (d) specific procedures and tests used to assess motor control defects
 7. Neuro developmental assessment
 8. Anthropometry
 - a. Body measurements: Height, Weight, Circumference
 - b. Body Proportion: Body Mass Index (BMI), Waist Hip Ratio (WHR)
 - c. Body Composition: Somato typing
Methods of measurement: Water displacement, Skin fold

measurement, Under water weighing, Bioelectric Impedance Analysis (BIA)

9. Differential diagnosis in Physiotherapy
10. Exercise ECG testing and monitoring.
11. Pulmonary function tests.
12. Physical disability evaluation and disability diagnosis.
13. Gait analysis and diagnosis.
14. Functional evaluation.
 - a. The concepts of health status impairment; functional limitations; disability and handicap; definition of functional activity and the purposes and components of the functional assessment; selection of activity and roles for an individual based on his or her capabilities and functional limitations.
 - b. Various forms of functional tests; physical function test and multidimensional functional assessment instrument, identification of instrument for testing function.
 - c. Various scoring methods used in functional assessment;
 - d. Reliability and validity of various functional assessments.
15. Evaluation of aging

PAPER : ADVANCED PHYSIOTHERAPEUTICS

1. Pain: Neurobiology, Various theories, Modulation and Physiotherapy Management including Electromagnetic radiations, ultrasound, Electro acupuncture etc.
2. Maternal and child care in general physiotherapy.
3. Applied neuro-anatomy and neuro-physiotherapy.
4. Inhibition and facilitation techniques.
5. Theories of motor learning.
6. Therapeutic bio feedback & psychosomatic training.
7. Combination therapy, shock wave therapy, long wave therapy.
8. Functional training – Respiratory exercises, Training for feeding, bladder and bowel training, coughing and compression.
9. Artificial respiration, inhalation therapy & intensive care unit procedures.
10. Yogasanas & Pranayama
 - Physiological & therapeutic principles of yoga
 - Yogasanas for physical culture, relaxation and meditation.
 - Application of Yogasanas in physical fitness, flexibility, cardiac rehabilitation and neuromotor learning.

- Pranayama and respiratory physiology.
 - Kriyas and their physiological significance. Therapeutic application of yoga.
 - Yoga – a holistic approach.
11. Acupuncture: definition, principles, techniques, physiological effects, indications, contra- indications, dangers & integration of acupuncture with physiotherapy.
 12. Magneto therapy.
 13. Naturopathy
 14. Dry Needling in various conditions
 15. History of manual therapy, overview of manual therapy approaches for all the joints
 16. Clinical Reasoning and differential clinical diagnosis and practical application of different approaches such as – Maitland, Kaltenborne, Cyriax, Mulligan and Mckenzie.
 17. Soft tissue approaches: Myofascial Release techniques, Neural tissue mobilization, Muscle Energy Techniques (MET), Position Release Therapy (PRT), Kinetic chain approach along with practical application.
 18. Massage, mobilization and manipulations.

19. Ergonomics
20. Recent advances and Evidence based Practice in all physiotherapeutic conditions.
21. Physiotherapy in common conditions of skin.
22. Physiotherapy in common vascular diseases.
23. Physiotherapy in nutritional deficiency diseases.
24. Physiotherapy in respiratory disorders.
25. Physiotherapy Management of ischemic heart diseases.
26. Exercise planning and prescriptions.
27. Physiotherapy in psychiatry.
28. Management of pain in neurological and Musculoskeletal disorders.
29. Physiotherapy management in arthritis and allied conditions.
30. Monitoring systems, defibrillator and Artificial respirators.
31. Physiotherapy in post-operative management of metabolic, hormonal, neoplastic and infective conditions of bones and joints.
32. Pre and post-operative physiotherapy in tendon transfer.
33. Physiotherapy management following head injuries, in intensive care and neurosurgical procedures.

34. Physiotherapy following general surgery.
35. Physiotherapy following uro-surgery.
36. Physiotherapy following plastic surgery.
37. Physiotherapy management following selective and common cases of oncologic surgeries
38. Physiotherapy following obstetric and gynecological disorders.

PAPER: ELECTIVE SUBJECT

1. ORTHOPAEDICS

Objectives:

This course shall enable the candidate to establish first contact physiotherapy for the management of Musculoskeletal disorders and pain, expertise in the skills of manual medicine, advanced electro-diagnostic/therapeutic skills and ability to function as a consultant in the team of health professionals concerned with sports sciences, hand rehabilitation, geriatric health and industrial set up.

The sub specialties are

- a. Advances in manual medicine and pain management
- b. Rehabilitation of hand
- c. Sports sciences
- d. Industrial health and ergonomics
- e. Geriatric health
- f. Applied bio-mechanics and bio-engineering

SYLLABUS

1. Anatomy & physiology of Musculoskeletal system.
2. Biomechanics of normal joints and Pathomechanics of fractures & deformed joints.
3. Introduction, principles and concepts of Patient history, observation, examination, principles, scanning examination, examination of specific

joints, functional assessment, specific tests, reflexes, cutaneous distribution, joint play movements, palpation and diagnostic imaging of spine & peripheral joints.

4. Functional assessment (Hand function, Gait, Posture, ADL, Occupational work)
5. Kinetic and kinematics analysis
6. Assessment & Management of locomotor impairments, disabilities and Disability evaluation.
7. Clinical symptomatology, pathophysiology, pathomechanics & Physiotherapy management of musculoskeletal conditions.
8. Pre operative and post operative assessment & management following orthopaedic surgeries.
9. Analysis and classification of sports and sports injuries. Assessment & Management of sports injuries, sports fitness.
10. Rehabilitation of Hand & Paediatric musculoskeletal disorders.
11. Rheumatology: Rheumatoid arthritis , SLE , juvenile rheumatoid arthritis.
12. Orthopaedic implants : designs, materials, indications, postoperative assessments and training.
13. Orthosis, Prostheses, Mobility aids & adaptive devices in musculo-skeletal problems : prescription, biomechanical compatibility, check out and training.

14. Physiotherapeutic approaches in musculoskeletal conditions:
 - Manual therapy approaches:
 - Soft tissue mobilizations and manipulations
 - Neural mobilizations, acupuncture
 - Joint mobilizations and manipulation – Peripheral joints and vertebral joints.
 - Therapeutic exercises commonly used in musculoskeletal conditions including correction exercises and home exercises
 - Pilates and core stability exercises
 - Proprioceptive Neuromuscular Facilitation (PNF)
 - Hydrotherapy in common musculoskeletal conditions
 - Swiss ball exercises
 - Taping, Wrapping and Bracing techniques.
15. Neurological complications of locomotor disorders, conservative Electro-diagnosis, electromyography and evoked potential studies. (specific disease oriented)
16. Industrial health and Ergonomics
17. Geriatric health
18. Recent advances in Orthopedic Physiotherapy.
19. Community based rehabilitation in musculoskeletal conditions
20. Evidence based physiotherapy management for different musculo- skeletal conditions.

2. NEURO SCIENCES

Objectives :

The course shall enable the candidate to expertise in early intervention acquisition and application of neuromotor and sensory integration skills on adults and paediatric neurological conditions as a first contact practitioner. Such candidate shall also attain an ability to acquire a position as consultant in the team of health care professionals involved in electro-diagnosis, disability evaluation, as well work in the management of patients at the intensive care area and/or in the rehabilitation neurologically affected adults and children/neonates.

The sub-specialties are:

- a. Adult neurological and psychosomatic conditions and applied neuro-physiology.
- b. Developmental and paediatric neuro pathological conditions.
- c. Applied bio-mechanics and bio-engineering
- d. Geriatrics
- e. Electro-diagnosis
- f. Intensive care

SYLLABUS

1. Anatomy and physiology of central nervous system and peripheral nervous system.
2. Clinical symptomatology, pathophysiology assessment & Physiotherapy management of the neurological disorders.
3. Outcome measures used in Neuro-physiotherapy-for
Cognitive impairment and disability, Global measures of disability, Motor impairment, ADL and extended ADL tests, Handicap and quality of life, Multiple Sclerosis, Parkinson's disease, Stroke, Head injury, Spinal cord injury, Pain scales.
4. Electro Diagnosis, conventional methods: Strength duration curves, accommodation, skin temperature, resistance and blood flow. (specific disease oriented).
5. Electromyography especially with reference to pathophysiology and pathomechanics. Quantitative EMG. Evoked potential studies.
6. Evaluation of ANS dysfunction with reference to psycho-physiological testing. Biofeedback training.
7. Neuropsychological functions. Perception testing and training.
8. Diagnostic imaging (CT, MRI, Ultra sound, PET, fMRI, bone scan and other diagnostic imaging) for diagnosis of Neurological conditions.
9. Clinical examination and detection of movement dysfunction.

10. Neuroplasticity, Motor learning and motor control training techniques.
11. Functional electrical stimulations and bio-feedback methods.
12. Aids and appliances in neurological disorders. Prescriptions, testing and training.
13. Learning Techniques of neuro-physiotherapy, emphasis on Bobath, Roods, NDT, PNF, MRP &Brunnstrom
14. Assessment of neurogenic hand and foot
15. Neuro-physiology of Aging and its effects on movement, posture and gait.
16. Electro therapeutics stimulation systems, Electrophysiological assessment devices and NMES - instrumentation, Characteristics and components.
17. Intensive Care Units.
18. Diagnostic procedures in movement disorders.
19. Assessment and scales for diagnosis of pain.
20. Developmental and Paediatric neuro-pathological conditions.

3. CARDIO RESPIRATORY DISORDERS.

Objective :

The course shall enable the candidate to expertise in the knowledge and skill of operating advanced instrumentation at the intensive care area as well as modern investigative procedures such as stress testing in the presence of a physician. Such candidate shall also attend an ability to function an essential team member of intensive care units, as well as team of experts in the cardio-pulmonary rehabilitation general fitness and health promotion at the hospital set-ups industrial/ geriatric set-ups, health clubs, sports fitness/ training and women's health. The sub-specialties are

- a. Adult and Paediatric emergency.
- b. Cardiac rehabilitation and management.
- c. Pulmonary Rehabilitation.
- d. Geriatric and Industrial Health.
- e. Sports sciences and health preparations.

SYLLABUS:

1. Anatomy and physiology of cardio-vascular and pulmonary systems.
2. Epidemiology, symptomatology and pathophysiology of cardiopulmonary disorders.
3. Clinical assessment, Rationale of laboratory investigations and differential diagnosis.
4. Evaluation of pulmonary dysfunctions, lung function tests – volumetric, analysis of blood gases, Imaging techniques.
5. Evaluation of cardiac dysfunctions. ECG, Exercise ECG testing, Holter

monitoring etc. Echocardiogram, X-ray, imaging techniques etc.

6. Cardio-pulmonary medications & their effects on activity performance.
7. Physiotherapy management of post operative patients in cardiopulmonary disorders.
8. Evaluation of peripheral vascular disorders: Clinical, blood flow studies, Temperature plethysmography. Risk factors and preventive measures.
9. Cardio-pulmonary emergencies and management principles – medication, critical care, indications of surgical interventions, stabilization of vital functions – defibrillation.
10. Cardio-pulmonary resuscitation.
11. Respiratory Physiotherapy – Lung hygiene, humidifiers, nebulizers, intermittent positive pressure breathing etc. and rehabilitation.
12. Medical, surgical and physiotherapy management of peripheral vascular disorders.
13. Exercise testing, planning and prescription, aerobic and anaerobic exercise training.
14. Cardiac rehabilitation – conservative and post-operative management.
15. Pulmonary rehabilitation.
16. Geriatric and industrial health.
17. Intensive Care Unit – concept and set up, equipment for advanced methods of resuscitation, monitoring and patient management: artificial airways, ventilators, pulse oximeter, defibrillator.
18. C.B.R in Cardio-vascular and respiratory conditions.
19. Recent advances in Cardio respiratory physiotherapy.

4. COMMUNITY HEALTH

Objectives:

At the end of the course, the candidate will

- a. Acquired the in depth understanding of the concept of community based rehabilitation.
- b. Be able to assist in planning and organization of camps at community level.
- c. Be able to impart services and training at the community level effectively with minimum resources.

The course shall enable the candidate to expertise in the community health and function in the general set up as consultant. Such candidate shall attain ability as a consultant and mandatory member of the team of the health professionals, involved in the following sub-specialties.

- a. Movement and psycho-somatic conditions.
- b. Cardio-pulmonary rehabilitation.
- c. Mother and child care.
- d. Industrial health
- e. Geriatrics.

SYLLABUS:-

Rehabilitation - Basics

1. Definition, Concept, principles & Scope of Rehabilitation, Community, Health care delivery system, Health Administration, Institutional based rehabilitation and community based rehabilitation – its principles and differences, multi-disciplinary approach, role of national institutes, District Rehabilitation center

and primary health center. Physiotherapist as a Master Trainer in CBR & IBR.

2. Epidemiology of dysfunctions & advance skills of physical and functional assessment related to Community. Clinical decision-making skill in management of dysfunction
3. Evidence Based Practice & Recent advances in Community Health. Indian Health statistics
4. Fitness and health promotion – Principles of fitness for health promotion in community, Nutrition and Diet. Stress management through yoga and psychosomatic approaches.
5. Natural calamity & disaster management – Role of P.T. in disaster management team.
6. I.C.F. [Impairment, Disability, Handicapped and its implications] Evaluation of Disability & Compensation for Persons with disability Act – 1995 and related Government infrastructure.
7. Physiotherapy Ethics – code of conduct, Regulatory Agencies and Legal Issues.
8. W.H.O. policies-about rural health care -Role of P.T.-Principles of a team work of Medical person/ P.T./ O.T.audiologist/ speechtherapist/ P.&O./ vocatio nalguidein C.B.R. of physically handicapped person.

9. Public health education methods and appropriate media – Public awareness to the various disabilities, communications, message generation and dissipation.
10. Role of Government & NGOs in CBR, Inter-sectoral programs and Co-ordination, Implementation of the Act.

Rehabilitation – Assessment and Evaluation Assistive Technology for mobility & Stability

1. Orthotics & Prosthetics: definition, classification, biomechanical principles; assessment and evaluation, prescription & fabrication
2. Designing & Training of UL, LL, trunk, neck orthosis, footwear modifications in various conditions
3. Designing & Training of UL, LL prosthesis in Amputees.
4. Indications / Contraindications, psychological aspects of its application.
5. Use of adaptive devices, design & construction e.g. canes, walkers, wheelchairs.

Industrial Health

1. Clinical decision making skill in assessment and management of dysfunction related to Industrial health.
2. Vocational Rehabilitation; evaluation & management.

Clinical Rehabilitation conditions

1. Rehabilitation in musculoskeletal conditions, sport sciences and health promotion
2. Rehabilitation in cardio-pulmonary conditions, and health promotion
3. Rehabilitation in neurological conditions, movement & psychosomatic disorders, pediatric conditions
4. General fitness strategies- body mass composition, assessment, obesity and weight control

Mother and Child Care :

Clinical decision making skill in assessment and management of dysfunction related to mother & child.

Geriatrics & Health Promotion

1. Applied anatomy, physiology and biomechanics related to Aging/ degenerative changes-Musculoskeletal/neuromotor/ cardio -respiratory / metabolic/ integumentary / sensory
2. Clinical decision making skill in assessment and management of dysfunction related to geriatric health.
3. Role of Physiotherapy in a Home for the aged- geriatric care/physiotherapy, holistic approach.
4. Fitness and Health promotion in elderly.

5. Psychosomatic approaches in management of disorders of stress, change in life-style to reduce risk factors for disability. Drug dependence and iatrogenic disorders.
6. Assistive Technology used for Stability & mobility to enhance function.
7. Describe the process & approaches of counseling.
8. Describe various scales used for quality of life for elderly.
9. Urinary incontinence and impairment of pelvic floor.
10. Conservative pain management
11. Perception and cognitive impairment

5. SPORTS SCIENCES

Objectives:

At the end of the course, the candidate will

- a) This course shall enable to establish first contact physiotherapy for management of sportsinjury, emergency care, athletic first aid, prevention of sports injury.
- b) It will help function as a consultant in the team of health professionals concern with sports sciences,women's health and common medical problem related to sports persons.

Syllabus:

1. Anatomy, Physiology, embryological development of musculoskeletal system.
2. Osteology; structure of bone, ossification of bones, skull bones, facial bones, bones of upper extremity, lower extremity, pelvis, vertebral column, ribs.
3. Myology; Structure of muscles , type of muscle, muscle fibers, origin, insertion,nerve supplyof muscles of upper extremity, lower extremity, Trunk.
4. Structure of joints, types of joints, detailed structure and formation of all the joints, detailedstructure and formation of al the joints, neurobiology of joint.
5. Neurology: peripheral nerves, dermatomes and myotomes.

6. Physiology: Joint physiology (movements), muscle physiology.
7. Sports Psychology
 - a. Assessment of personality in sports
 - b. Significance of attention and perception
 - c. Concentration training and its significance in sports
 - d. Techniques to facilitate motivation in sports
 - e. Anxiety and its effect on sports performance
 - f. Relaxation training in sports
 - g. Stress management in sports
 - h. Leadership qualities and group behavior and its significance in team sports
8. Sports Nutrition
 - a. Significance of nutrition in sports performance
 - b. Maximizing energy stores and hydration for performance
 - c. Pre competition meal and its significance
 - d. Ergonomic aids
9. Doping and sports
 - a. List of banned drugs
 - b. Various methods of dope testing
 - c. Education of sport person on doping and its effects

10. Sports for special population
 - a. Child, adolescent and female athletes
 - b. Sports as recreation and competition for elderly population
 - c. Special concerns for handicapped and differently abled
11. Inflammatory and healing process, microtrauma and stress reactions
12. Rules and regulation of sports
13. Biomechanics of different sports (throwing, running, jumping, swimming etc.) and its relation to the joint injuries
14. Sport specific injuries
15. Flexibility exercises, stretching, mobilization, resisted exercise, PNF and hydrotherapy in sports
16.
 1. Assessment in sports Physiotherapy
 - a. On field assessment: Emergency sports assessment, Pre event preparation, Primary assessment; levels of consciousness, establishing the airway, assessment for bleeding, fluid loss and shock, pupil check, assessment for head injury, assessment for spinal cord injury, assessment for movement, positioning the patient, injury severity, secondary assessment.
 - b. Participation evaluation
 - c. Assessment of an athlete for return to activity
 2. Fitness evaluation of a sports person
 - a. aerobic power
 - b. anaerobic power and capacities

- c. muscular strength and power
 - d. flexibility
 - e. Body composition etc...
- 17. Tools in sports evaluation
 - a. EMG
 - b. Isokinetic testing
 - c. Psychological tests
 - d. Diagnostic biofeedback
- 18. Biomechanical assessment of specific sports and tools used in sports
 - a. Field events
 - b. Racquet sports
 - c. Swimming
- 19. Sports specific assessment for common injuries in
 - a. Contact and non-contact sports
 - b. Individual events
 - c. Group or team events
 - d. Water sports
- 20. Significance of imaging techniques in sports injury assessment and evaluation
- 21. Assessment and evaluation of following:
 - a. Epiphyseal injuries, Classification, complications and prognosis of factors intrinsic factors, extrinsic factors.

- b. Shoulder girdle injuries: Injuries to the sterno clavicular joint sprains, location of glenohumeral joint, recurrent anterior dislocation of shoulder, thoracic outlet syndrome, painful arc, rotator cuff injuries, impingement syndromes, glenoid labrum lesions.
- c. Elbow joint injuries: Olecranon bursitis, valgus extension overload, elbow, ulnar nerve lesion, ulnar and radial collateral ligament sprains, contusions and strains, dislocations, osteochondritis dissecans, little leaguers elbow, problems resulting from throwing medial lesions, lateral lesions, and posterior lesions.
- d. Elbow injuries from tennis: Epicondylitis incidence, pathology, mechanism of injury
- e. Wrist and hand injuries: Colles fracture, Scaphoid fracture, gamekeepers thumb, DIP joint fracture, and dislocation, jersey finger, boutonniere deformity, pseudo boutonniere deformity, fractures of the metacarpals, Bennett's fracture, mallet fracture, DeQuervain's stenosing tenosynovitis of the thumb, bowler's thumb, hand/wrist palsy, hamate fracture, ganglion cysts, trigger finger, carpal tunnel syndrome.

- f. Thigh injuries: Contusion to the quadriceps, strain of the quadriceps musculature, acute strain of the hamstring group, complete rupture of the patellar tendon
- g. Knee injuries: Knee ligament injuries first degree sprain, second degree sprain, third degree sprain, anterior and posterior cruciate tears, anteriolateral instability meniscal lesion, articular cartilage lesions, patella femoral dysfunction.
- h. Injuries of the patella: Patella fracture - acute dislocation, recurrent dislocation, subluxation and spontaneous reduction of a dislocated patella, osteochondritis dissecans, jumper's knee.
- i. Injuries to the lower leg, ankle and foot: Tibiofibular synostosis, rupture of gastrocnemius, tennis leg, total rupture of the Achilles tendon, partial rupture of the Achilles tendon, tendinopathies - Achilles tendonitis, anterior tibialis tendonitis, peroneal tendonitis, posterior tibial tendonitis, flexor hallucis longus tendonitis, flexor digitorum longus tendonitis, compartmental compression syndromes, heel bursae, Os trigonum injury, calcaneal apophysitis, tarsometatarsal injuries, tarsal tunnel syndrome, cuboid syndrome, metatarsal stress fracture, interdigital neuroma, stair climbers transient paresthesia, turf toe, sesamoiditis.
- j. Injuries to the ankle: Syndesmotic ankle sprain, inversion sprains, eversion sprains, dorsiflexion sprains, tarsal tunnel syndrome, stress fracture of the metatarsal, Morton's neuromas, corns and

- calluses, blisters, ingrown toenails, peroneal Tendon subluxation.
- k. Injuries to the low back: Postural syndrome, dysfunction syndrome, derangement syndrome, spondylolysis
 - l. Injuries to the running athlete: Causes of overuse injuries, common running induced injuries to the lower back, common running induced injuries to the hip iliotibial tract pain, trochanteric bursitis, stress fracture of femoral neck, slipped capital femoral epiphysis, vague hip pain.
 - m. Common running related injuries to the knee: medial patellar pains, pes anserine bursitis, patellar tendonitis, retro patellar pain, lateral knee pain, biceps femoral tendonitis.
 - n. Common running related injuries to the lower leg tibial stress reaction, stress fracture, medial tibial stress syndrome, compartment syndrome anterior posterior lateral, fibular stress reaction and stress fracture, retro calcaneal bursitis medial arch pain, plantar fasciitis.
 - o. Swimming injuries: swimmers shoulder, anterior subluxation of the glenohumeral joint, breast stoker's injury.

6. PAEDIATRICS

Objectives:

At the end of the course candidate will learn

- 1) To gain knowledge regarding embryology of nervous system, neurophysiology of nervous system.
- 2) Asses and diagnose all possible findings on the patient to plan a Rehabilitation programme.
- 3) Document patients with scale, outcome measures, and asses the progression.
- 4) Use recent Technique/ approaches to treat & train children with Neurological, Orthopaedic & Cardio-respiratory deficits.

Syllabus:

1. Embryology of nervous system
2. Neurophysiology of nervous system
3. Assessment and management of Genetic basis of paediatric disorders & genetic counselling
4. Assessment and management of Growth & development disorders of child.
5. Reflex & reaction
6. Neurodevelopment assessment, developmental diagnosis, developmental screening with various scales
7. Assessment and management of progressive loco motor disorders – Neuropathic & Myopathic.

8. Principles of laboratory investigation for differential diagnosis
9. Neonatal care, risk babies, early intervention & Management, NICU and PICU
10. Assessment and management of Cognitive & perceptual dysfunction –
Learning difficulties, ADHD, Autism, Sensory integration
11. Cardio respiratory assessment and management of neonate & infant & related
paediatric disorders
12. Assessment and management of Movement disorders- Chorea, athetosis,
Dystonia & Choreoathetosis
13. Different approaches for paediatric conditions
14. Assessment and management of Developmental anomalies- spina bifida,
Hydrocephalus
15. Assessment and management of Traumatic brain injury
16. Mother & child care
17. Assessment and management of Oromotor disorders
18. Assessment and management of Infectious and metabolic conditions in
children
19. Electro diagnosis in children (EMG, NCV)
20. Motor control & motor learning theories
21. Paediatric Surgeries and it's post operative management
22. Assessment & Management of Paediatric traumatic & non- traumatic
musculoskeletal conditions.
23. Sports injuries in children.

PHYSIO 23 :- RECOMMENDED BOOKS :-

1st YEAR M.P.T

1. Scientific basis of human movement - Gowitzke, Williams & Wilkins, Baltimore 1988 3rd edition.
2. Clinical biomechanics of spine-White A,A and Punjabi-J.B Lippincot, Philadelphia 1978.
3. Kinesiology - Brunnstrom Singe, F.A Davis-Philadelphia-1966
4. Textbook of work physiology – Guyton, Prim Books Banglore – 1991 8th edition.
5. Handbook of physiology in Aging – Masoro, C.R.C Press, 1981.
6. Research for physiotherapists – Hicks C., Churchill Living stone, Edingburgh 1995 Ed.
7. Introduction to research in Human Sciences – Polgar S., Churchill Living stone, London, 1988.
8. Elements of Research in Physical Therapy – Currier D.P., Williams & Wilkins, Baltimore, 1990, Ed. 3.
9. Handbook of Research Method – Sproull, Scarecrow Press, 1998.
10. Physical Therapy Research – Domholdt, W.B. Saunders, Philadelphia.

11. Public power & Administration – Wilenski, Hale & Iremonger, 1986.
12. Physical Therapy Administration & Management – Hickik Robert J.
13. Management Principles for physiotherapists – Nosse Lorry J.
14. Human Neuro-anatomy – Carpenter M. B., Williams & Wilkins, Baltimore, 1983.
15. Physical Therapy Assessment in Early Infancy – Wilhelm Churchill Living stone, New York, 1993.
16. Physical Therapy for Children – Campbell Suzann K, W.B. Saunders, Philadelphia, 1994.
17. Physical Management of Multiple Handicapped – Fraser, William & Wilkins, Baltimore.
18. Elements of paediatric Physiotherapy – Eckerley p, Churchill Living stone, Edinburgh, 1993.
19. Physiotherapy in paediatrics – Shepherd R. Heinmann, London, 1980 2nd edition.
20. The growth chart – WHO, Geneva, 1986.
21. Orthotics in neurological rehabilitation – Alsen, Demos Publication, New York 1992.

2nd Year MPT

1. Manual of nerve conduction velocity techniques – De Lisa, Raven press
2. Electro-diagnosis in diseases of nerve and muscle – Kimura j, F.A. Davis, Philadelphia.
3. Mobilization of the extremity joints – Kalternbore, Harper and Row
4. Chest Physiotherapy in Intensive Care Unit – Makezie, Williams & Wilkins, Baltimore.
5. Cardiopulmonary Symptoms in Physiotherapy – Cohen M, Churchill Livingstone, London
6. Physical Rehabilitation: assessment and Treatment – O’Sullivan, F.A. Davis, Philadelphia 1994.
7. Neuro-rehabilitation – Faber, W.B. Saunders, Philadelphia 1982.
8. Orthopaedic Physical therapy – Donatteli, London, Churchill Livingstone
9. Yoga therapy – Kuvalayananda Swami and Vinekar, Popular prakrashan, Bombay, 1992.
10. Gait Analysis – Perry J., Black Thorofare, New Jersy, 1992.
11. Biofeedback – A practitioner’s guide – Kerth D, Guiford press.
12. The neural basis of motor control – Black I, Churchill Livingstone, London.

13. Physical therapy Management of Parkinson's disease – TumbellGerode I, Churchill Livingstone, London.
14. Abnormal postural reflex activity caused by Brain lesions –Bobath b. Aspen publications, Rockville, 1897.
15. Disorders of voluntary muscle – Eagal, Churchill Livingstone,Edinburgh,
16. A clinician's view of neuro muscle disorder – Brook M. H Williams and Wilkins, Baltimore, 1986.
17. Proprioception, neuro muscular facilitation techniques – KnotM. and Voss, Harper and Row, New York 1972 2ndedition.
18. Stroke rehabilitation – Laidler, Capman and Hall, London 1994.
19. Motor relearning programme for stroke – Carr, Aspen publication.
20. Adult hemiplegia: evaluation and treatment – Bobath B. Heinmann.
21. Paraplegia and tetraplegia – Brombley, Churchill Livingstone.
22. Child with spina bifida – Anderson E.M, and Spain B Methun,
23. A manual of neonatal intensive care – Robert N.R.C, Edward Arnold, London 1986.
24. Measurement in Physical therapy – Churchill Livingstone, London
25. Soft tissue pain and disability – Cailliet Rene, Jaypee Brothers, New Delhi
26. Myofascial Pain And Dysfunction – Travell, Williams & Wilkins, Baltimore.
27. Physical Therapy of the low back – Twomoy, Churchill Livingstone

28. Sports Injuries of the Shoulder – Souza Thomas A, Churchill Livingstone
29. Vertebral Manipulation – Maitland G.D, Boston, Butterworth & Co. Boston.
30. Peripheral Manipulation – Maitland G.D, Boston, Butterworth & Co. Boston
31. Sports and physical therapy – Bernhardt Donna, Churchill Livingstone
32. Hand rehabilitation – Christine, Churchill Livingstone, London
33. Cardiopulmonary Symptoms in Physiotherapy practice – Cohen M. Churchill Livingstone
34. Clinical application of ventilatory support – Kinby, Churchill Livingstone, New York.
35. Cardiopulmonary Physiotherapy – Irwin C.V., Mosby, St. Louis
36. Pulmonary rehabilitation: Guidelines to success – Hoidkins, Butterworth, Boston
37. Cardiac Rehabilitation – Amundsen L.R, Churchill Livingstone
38. Obstetrics and Gynecological Physical Therapy – Wilder Elnine, Churchill Livingstone
39. Physiotherapy in Obstetrics and gynecology – Polden & Mantle.
40. Physical Therapy of the cancer Patient – McGary excharles.
41. Industrial Therapy – Key G.L, Mosby
42. Orthopedic and Sports Physical Therapy - Malone, Mosby.

43. Sports Injuries: Diagnosis and Management by Christopher M. Norris
44. Functional Movement in Orthopaedic and Sports Physical Therapy: Evaluation
45. Treatment, and Outcomes by Bruce Brownstein and Shaw Bronner
46. Therapeutic modalities in Sports Medicine - William Prentice, Mosby. Sports Physiotherapy - Zuluaga, WB Saunders.
47. Orthopedic Sports Physical Therapy - Gould, Mosby
48. Functional Movement in Orthopedic and Sports Physical Therapy - Brownstein Bronner. S, Churchill Livingstone.
49. Sports-Specific Rehabilitation by Robert A. Donatelli PhD PT OCS
50. Clinical Sports Medicine - Brukner. P, Mc Graw hill.
51. Physiology of Sports and Exercise - Majumdar. P, New Central Book.
52. Functional Rehabilitation of Sports and Musculoskeletal Injuries by W. Ben Kibler, Stanley A. Herring and Joel M. Press
53. Sports Injuries: Their prevention and treatment Lars Peterson, Per Renstron, Dunitz.
54. Sports Injuries - Assessment and Rehabilitation - Reed, WB Saunders.
55. Clinical Sports medicine - Brukner and Kahn, McGraw Hill.
56. Sports Injuries: A Unique Guide to SelfDiagnosis and Rehabilitation by Malcolm T. F.Read and Paul Wade

57. Connelly B.H. and Montgomery, P.C. Therapeutic exercise in developmental disabilities, Chattanooga 1987.
58. Campion, Mr. Ed hydrotherapy in paediatric, Heinemann 1985.
59. Physical therapy Assessment in Early Infancy - Wilhelm Churchill Livingstone, New York, 1993.
60. Physical therapy for children – Campbell Suzann K. W.B. Saunders, Philadelphia, 1994.
61. Physical management of multiple handicapped – Fraser, William & Wilkins, Baltimore.
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5. Physiotherapy (Canada)
6. Physiotherapy – theory & Practice
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8. Clinical Kinesiology
9. Journal of Bio-mechanics
10. American Journal of Sports Exercises
11. Paediatric Physical Therapy
12. Journal of Rehabilitation – Research & Development
13. Archives of Physical Medicine & Rehabilitation
14. Journal of Paediatric Orthopaedics.
15. Journal of Neurological Science

APPENDIX

MODEL CHECK-LIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS

Name of the Student:

Name of Faculty / Observer:

Date:

Sr. 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 the questions on the paper/subject					
6	AV aids used					
7	Ability to defend the paper					
8	Clarity of Presentation					
9	Any other observation					
Total Score						

MODEL CHECK-LIST FOR EVALUATION OF SEMINAR RESENTATIONS

Name of the Student:

Name of Faculty / Observer:

Date:

Sr. 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 to respond the questions					
7	Time Schedule					
8	AV aids used					
9	Ability to defend the paper					
10	Overall Performance					
11	Any other observation					
Total Score						

MODEL CHECK-LIST FOR EVALUATION OF CLINICAL WORK

Name of the Student:

Name of Unit Head:

Date:

Sr. No	Items for observation during Presentation	Poor (0)	Below Average (1)	Average (2)	Good (3)	Very Good (4)
1	Regularity of the Attendance					
2	Punctuality					
3	Interaction with Colleagues & Supportive Staff					
4	Maintenance of Case Records					
5	Presentation of cases during rounds					
6	Investigations work up					
7	Bedside Manners					
8	Rapport with Patients					
9	Treatment approaches & Techniques					
10	Overall quality of ward work					
Total Score						

EVALUATION FOR CLINICAL PRESENTATION

Name of the Student:

Name of Faculty:

Date:

Sr. No	Items for observation during Presentation	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	Mentioned all positive and negative points of importance					
6	Accuracy of general physical signs elicited correctly					
7	Whether any major sign missed or misinterpreted					
8	Diagnosis – Whether it follows logically from history & findings					
9	Investigation required & Special Investigation					
10	Aims					
11	Means					
12	Treatment Techniques					
13	Other					
Total Score						

MODEL CHECK-LIST FOR EVALUATION OF TEACHING SKILL PRACTICE

Name of the Student:

Name of Faculty:

Date:

Sr. No.	Items for observation during Presentation	Starding Pointt	Weak Point
1	Communication of the purpose of the talk		
2	Evokes audience interest in the subject		
3	Introduction		
4	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 main points at the end		
9	Asks Questions		
10	Answer questions asked by the audience		
11	Rapport of the speaker with his audience		
12	Effectiveness of the talk		
13	Uses Audio – Visual Aids Appropriately		
Total Score			

MODEL CHECK – LIST FOR DISSERTATION PRESENTATION

Name of the Student:

Name of Faculty:

Date:

Sr. No	Items for observation during Presentation	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 Performa					
Total Score						

CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE

Name of Student :

Name of Faculty :

Date :

Sr. No	Items for observation during Presentation	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 Performa					
6	Others					
Total Score						