

"D" Syllabus

Master in Physiotherapy (MPT) First Year

Review of Basic Physiotherapeutics

Subject Code : MPT-101

Min. Hrs -: 180 Hrs.

EXERCISE THERAPY

- General Exercise therapy and principles
- Assessment Methods & Techniques (like STTT, MMT, Body angles measurement techniques & Goniometry etc.).
- Functional diagnosis measures: Functional activity specific assessment-FIM, ADL Scales, Assessment of health wellness : SF-36.
- Responses and adaptations of various systems to exercise and training.
- Physiology of movements
- Strengthening exercise
- Mobilization various methods.
- Stretching and soft tissue mobilization and manipulation
- Relaxation, traction, posture, GAIT
- Hydro therapy, Balance and co-ordination.

ELECTROTHERAPY

- General electrotherapy and principles.
- Low medium and high frequency current and modalities
- Di-dynamic, Russian and High volt currents
- UVR, IRR, Laser radiations
- Cryotherapy
- Other physiotherapy and thermal modalities
- Characteristics and components of Electro therapeutic stimulation systems and Electro Physiological assessment devices.
- Muscle plasticity in response to electrical stimulation
- Electrical stimulation and its effect on various systems.

BIOMECHANICS, KINESIOLOGY AND PATHO-MECHANICS

- General Biomechanics, Kinesiology and principles.
- Bone, Joint, articular cartilage, various soft tissue and nerve.
- Biomechanics and pathomechanics
- Biomechanics, kinesiology and pathomechanics and all joints and muscles.
- Evaluation and assessment of postures, abnormal postures, gait and abnormal gaits.
- Evaluation and assessment of joint motions and muscle function.

BIO-ENGINEERING

- General Principles of Bio-Engineering
- Types and uses (orthotics and prosthetics)
- Preparation and application related to various disorders.

Master in Physiotherapy (MPT) First Year

Advanced Physiotherapeutics

Subject Code : MPT-102

Min. Hrs -: 180 Hrs.

MANUAL THERAPY

Part-I: Foundational concepts in Manual therapy Unit

1. History of manual therapy
2. Biomechanical principles in manual therapy
 - Concave-Convex rule
 - Close pack and Loose pack Positions
 - Resting positions
 - Joint status
 - Barrier concepts
 - Fryette's Laws
 - Articular neurology
4. Pain

Part-II: Joints Mobilization Techniques

(Terminology, Principles, Indications, Contra-indications, Assessment and method of application of the following techniques)

1. Kalten born
2. Maitland
3. Mulligan
4. McKenzie
5. Cyriax
6. Butler neural mobilization

Part-III: Soft Tissue Techniques and Recent Advances in Manual therapy

(Terminology, Principles, Indications, Contra indications, Assessment and method of Application of the following techniques) Unit

1. Myofascial release techniques
2. Muscle energy techniques
3. Trigger point release
4. High velocity thrust techniques
5. Positional release techniques
6. Lymphatic manipulations

Nerve Conduction studies, EMG and Biofeed Back

Theory

- Physiology and nerve conduction
- Electrical activities of muscles
- Different type of EMG recording in normal and abnormal muscles.
- MNCV, SNCV, 'H' reflex, F, wave & blink reflex.
- Procedure and recording methods mechanisms
- Physiology and mechanisms bio feed, procedure and application of various disorders.

Ergonomics

1. History of ergonomics
2. Worker care spectrum
3. Postural examination
4. Job analysis
5. Work hardening programme
6. Exit assessment
7. Pre-employment screening
 - Job analysis
 - Job task analysis
 - Job site analysis
8. Work capacity analysis
9. Role of Physiotherapy in industrial set up
10. Workers functional capacity assessment
11. Industrial therapy
12. Adult education
13. Injury prevention and ergonomics

Radiology, Pathology and Diagnostic Studies

Theory

- General studies
- Principle of reading radiological reports
- X-Ray, CT Scan and MRI scan in relation with various disorders/diseases
- Routine examination of blood urine, and sputum, procedures and analysis of the report.
- Clinical co-relation with various disorders.
- EEG, evoke potential etc.

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Master in Physiotherapy (MPT) First Year
Research Methodology and Biostatistics
Subject Code : MPT-103
Min. Hrs -: 100 Hrs.

RESEARCH METHODOLOGY

1. Research in physiotherapy

- Introduction
- Research for Physiotherapist: Why? How? And When?
- Research – Definition, concept, purpose, approaches
- Internet sites for Physiotherapist

2. Research Fundamentals

- Define measurement
- Measurement framework
- Scales of measurement
- Pilot Study
- Types of variables
- Reliability & Validity
- Drawing Tables, graphs, master chart etc

3. Writing a Research Proposal, Critiquing a research article

- Defining a problem
- Review of Literature
- Formulating a question, Operational Definition
- Inclusion & Exclusion criteria
- Forming groups
- Data collection & analysis
- Results, Interpretation, conclusion, discussion
- Informed Consent
- Limitations

4. Research Design

- Principle of Designing
- Design, instrumentation & analysis for qualitative research
- Design, instrumentation & analysis for quantitative research
- Design, instrumentation & analysis for quasi-experimental research
- Design models utilized in Physiotherapy

5. Research Ethics

- Importance of Ethics in Research
- Main ethical issues in human subjects' research
- Main ethical principles that govern research with human subjects
- Components of an ethically valid informed consent for research

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BIOSTATISTICS

1. Biostatistics

- Introduction
- Definition
- Types
- Application in Physiotherapy

2. Data

- Definition
- Types
- Presentation
- Collection methods

3. Measures of central value

- Arithmetic mean, median, mode. Relationship between them
- Partitioned values- Quartiles, Deciles, Percentiles
- Graphical determination

4. Measures of Dispersion

- Range
- Mean Deviation
- Standard Deviation

5. Normal Distribution Curve

- Properties of normal distribution
- Standard normal distribution
- Transformation of normal random variables.
- Inverse transformation
- Normal approximation of Bioaxial distribution.

6. Correlation analysis

- Bivariate distribution:
- Scatter Diagram
- Coefficient of correlation
- Calculation & interpretation of correlational coefficient
- T-test, Z-test, P-value

7. Regression analysis

- Lines of regression
- Calculation of Regression coefficient
- Sampling distribution
- Standard error
- Types I & II error

9. Probability (in Brief)

10. Hypothesis Testing

- Null Hypothesis
- Alternative hypothesis
- Acceptance & rejection of null Hypothesis
- Level of significance

11. Parametric & non parametric tests

- Chi square test
- Mann-Whitney U test
- Wilcoxon Signed test
- Kruskal-Wallis test
- Friednam test
- T-test/student T test
- Analysis of variance

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**Master in Physiotherapy (MPT) First Year
Practical**

Subject Code : MPT-104

Min. Hrs -: 200 Hrs.

1. Assessment, evaluation and diagnosis
2. Practice and application of physiotherapeutic system in hospital/centre/ institution.
3. Application of advance physiotherapeutic maneuvers like manipulation (maitland, cyriax, mulligan etc.) and various neurological interventional concepts (bobath, NDT etc.).
4. Clinical reasoning, decision making, evidence based practice and recording system.
5. Short case from area of elective to assess investigative and diagnostic skills
6. Short case from area of elective to assess patient management skills


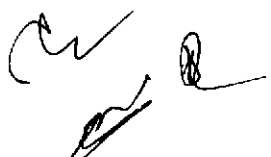



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Master in Physiotherapy (MPT) First Year
Clinical Lab Practices
(Common to all specialization/discipline)
Min. Hrs -: 440 Hrs.

Post graduate students must know :

- Assessment, evaluation and diagnosis.
- Practice and application of physiotherapeutic system in hospital/ institution.
- Application of advance physiotherapeutic maneuvers like manipulation and various neurological interventional concepts.
- Clinical reasoning, decision making, evidence based practice and recording system.





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Master in Physiotherapy (MPT) First Year
Teaching Skills/ Seminars/Symposia/Journal Club etc.*
(Common to all specialization/discipline)
Min. Hrs -: 260 Hrs.

(a) Teaching Skills

Candidates should be encouraged to teach undergraduate students if any. This performance will be based on assessment by the faculty members of the department and from feedback from the undergraduate students.

(b) Seminar/Symposia

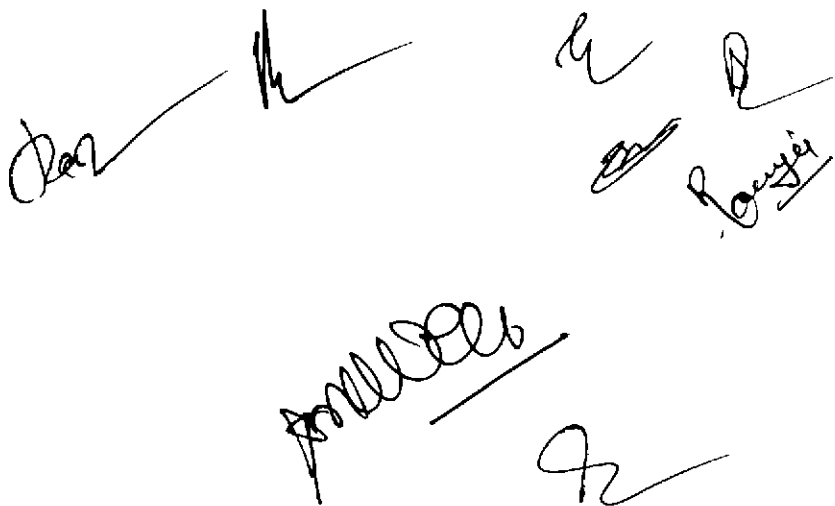
- Seminars /recent advance presentation will be held every week, however, its timings are subject to clinical schedule. Topics must be well researched and must include common knowledge, recent advances, analysis and references.
- PG students should present minimum of two seminars (One in general and one in elective area) and Internal Assessment marks with depend on better topic selection and presentation.

(c) Journal Review Meeting (Journal Club):

The ability to do literature search, in depth study, presentation skills, and use of audio-visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting.

(d) Work diary / Log Book

Every student shall maintain a work diary and record his/her participation in the training programmes 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 practice, if any conducted by the candidate by the student.



Master in Physiotherapy (MPT) Second Year

Pedagogy in Physiotherapy Education

(Common to all specialization/discipline)

Subject Code : MPT-201

Min. Hrs :- 100 Hrs.

Objective:

On completion of the study of this subject the student should be able to

- Understand the Dynamics of teaching & learning
- Plan effective teaching sessions in Physiotherapy

Following are the topics to be included but not limited to:

1. Education

- Introduction
- Educational Philosophy- Idealism Naturalism, Pragmatism
- Aims of Education
- Functions of Education
- Formal, informal and non-formal Education
- Agencies of Education
- Current issues and Trends in Higher Education
- Issue of quality in Higher Education
- Autonomy and Accountability
- Privatization of Education

2. Concept of Teaching and Learning

- Meaning and scope of Educational Psychology
- Meaning and Relationship between teaching and learning
- Learning Theories
- Dynamics of behavior
- Individual differences

3. Curriculum

- Meaning and concept
- Basis of curriculum formulation
- Framing objectives for curriculum
- Process of curriculum development and factors involved.
- Evaluation of curriculum

4. Method and techniques of teaching

- Lecture
- Demonstration
- Discussion
- Seminar
- Assignment
- Project
- Case Study

5. Planning for teaching

- Bloom's taxonomy of instructional objectives
- Writing instructional objectives in behavioural terms
- Unit planning
- Lesson planning

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6. Teaching aids

- Types of teaching aids
- Principles of selection, preparation and use of audio-visual aides

7. Measurement and Evaluation

- Nature of educational measurement: meaning, process, types of tests
- Construction of an achievement test and its analysis
- Standardized test
- Introduction of some standardized tools, important tests of intelligence, aptitude, and personality.
- Continuous and comprehensive evaluation

8. Guidance and counseling

- Meaning & concepts of guidance and counseling
- Principles of guidance and counseling

9. Awareness PROGRAMME

- Awareness and guidance to the common people about health and disease

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Master in Physiotherapy (MPT) Second Year
Administration Management & Ethical Issues
(Common to all specialization/discipline)
Subject Code : MPT-202
Min. Hrs :- 100 Hrs.

Objective:

On completion of the study of this subject the student should be able to

- Understand the basic issues of Management & Administration
- Practice as an informed professional on Legal & ethical issues

SECTION I

Management:

- Introduction
- Evolution of management
- Functions of management
- Management process – planning, organization, direction, controlling
- Decision-making.

Personnel management:

- Staffing
- Recruitment selection
- Performance appraisal
- Collective bargaining
- Job satisfaction

Marketing:

- Market segmentation
- Channels of distribution
- Promotion
- Consumer behavior


Total Quality Management:

- Basics of quality management
- Quality control
- Quality assurance PROGRAMME in hospitals & medical audit
- International quality system.

SECTION II

Administration, Legal Ethical Issues

- Hospital as an organization - Functions and types of hospitals
- Roles of Physical therapist, Physical therapy Director, Physiotherapy supervisor, Physiotherapy assistant, Physiotherapy aide, Home health aide, Volunteer.
- Rules of Professional Conduct.
- Legal responsibility
- Code of ethics
- Functions of Physiotherapy associations
- Role of the International Health Agencies
- Standards of practice for physiotherapists
- Liability and obligations in the case of medical legal action
- Law of disability & discrimination
- Confidentiality of the Patient's status
- Consumer protection law, health law, MCI, DC



Master in Physiotherapy (MPT) Second Year
Orthopaedic Disorders and Management-I
Subject Code : MPT-2030
Min. Hrs :- 180 Hrs.

Objective:

On completion of the study of this subject the student should be able to

- Correlate the clinical manifestations to the organ of dysfunction of the musculoskeletal system
- To understand the Conservative & Surgical management of the musculoskeletal conditions as relevant to physiotherapy.

Musculoskeletal disorders

- Introduction, epidemiology of disease pattern, Path physiology, Clinical presentation, conservative management & complications of the following clinical conditions:

General Musculoskeletal Disorders

1. Congenital Malformation

- Upper Limb
- Lower Limb
- Spine

2. Rheumatic disorders

- Rheumatoid arthritis
- Ankylosis Spondylosis
- Reiter's disease
- Polymyalgia rheumatica
- Psoriasis

3. Infections of musculoskeletal system

- Acute
- Chronic

4. Metabolic and endocrine disorders

- Calcium metabolism
- Osteoporosis
- Osteomalacia and ricket
- Hyper parathyrodism

5. Tumors of the musculoskeletal system

- Classification
- Benign
- Malignant

6. Neuromuscular disorders

- Poliomyelitis.
- Cerebral palsy
- Arthrogryposis multiplex Congenita
- Muscular dystrophy

7. Osteoarthritis and crystal deposition diseases

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Musculoskeletal Disorders

Orientation and General principles of Orthopaedic surgery-

1. Arthrodesis
2. Osteotomy
3. Arthroplasty
4. Bone grafting
5. Internal and external fixations
6. Distraction and limb reconstruction
7. Correction of bone deformities and joint contractures.
8. Tendon transfers
9. Nerve suturing and grafting.

PHYSIOTHERAPY ASSESSMENT

1. Review of General assessment – patients history, observation, palpation, examination
2. Pain assessment and scales for evaluation in acute and chronic pain
3. Sensory assessment
4. Motor assessment
5. Balance assessment and scales for assessment. Balance Outcome measures and there administration.
6. Assessment of Tone, flexibility, tightness of musculoskeletal tissues
7. Muscle Length Testing and special tests for the same
8. Reflex testing
9. Limb length measurement recent methods for assessment and its clinical applications
10. Postural assessment methods and common deviations from the normal
11. Examination of movements, Range of Motion
12. Clinical Gait assessment (observational methods and EMG gait analysis)
13. Functional assessment
14. X-Ray, MRI, CT report reading and analysis
15. Physical Disability evaluation in detail .ICF classification

PHYSIOTHERAPY MANAGEMENT

Review of Basic Techniques:

1. Stretching (principals and methods)
2. Strengthening (principals and methods)
3. Passive movements testing and end feel assessment
4. Active exercise training , its benefits and various methods
5. Assisted resisted exercise training
6. Resisted exercise training. Its uses and disadvantages in comparison with other forms of exercise training
7. Postural Re-education (methods and techniques)
8. Electrotherapy Modalities(principal off application and properties along with various indications and contraindications)

Advanced Physiotherapy Treatment approaches:

1. Mobilization techniques like Mc Kenzie.
2. Pain management with emphasis on pain of peripheral origin and central origin
3. Gait Training
4. Biofeedback
5. Hydrotherapy
6. Patient & family education
7. Role of splints in Physiotherapy
8. Relaxation Techniques
9. Massage therapy
10. Wheel chair skills-basic

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Master in Physiotherapy (MPT) Second Year
Orthopaedic Disorder & Management-II
Subject Code : MPT-2040
Min. Hrs -: 180Hrs.

OBJECTIVE:

On completion of the study of this subject the student should be able to

- Correlate the clinical manifestations to the organ of dysfunction of the Musculoskeletal system
- To understand the conservative & surgical management of the Musculoskeletal conditions as relevant to physiotherapy.

Following are the topics to be included but not limited to:

MUSCULOSKELETAL DISORDERS

Introduction, epidemiology of disease pattern, Path physiology, Clinical presentation, complication and physiotherapy management of the following clinical conditions:

Regional Orthopaedics

1. The shoulder

- Rotator cuff lesions
- Instability
- Rheumatoid disease of shoulder.
- Tuberculosis

2. The Elbow

- Tennis elbow
- Golfer's elbow
- Myositis ossificans

3. The Wrist

- Carpal tunnel syndrome
- Ganglion
- Wrist instabilities and special tests

4. The Hand

- Peripheral nerve injuries
- Tendon lesions and transfer surgeries
- Deformity in rheumatoid arthritis, peripheral nerve injuries, Hemiplegia
- SCI and leprosy

5. Cervical Spine

- Discogenic pain
- Whiplash injuries
- Thoracic outlet syndrome
- Brachial plexus injury and plexopathies
- Torticollis and wry neck in pathologies of cervical spine

6. Back

- Invertebral disc.
- Discogenic pain
- Spondylolysis & listhesis
- Scoliosis & kyphosis
- Tuberculosis

- Musculoskeletal causes of low back pain

7. The Hip

- Avascular necrosis of femoral head.
- Osteoarthritis
- Principles of Total Hip Replacement (THR)

8. Knee

- Osteoarthritis
- Meniscal / ligament injuries
- Genu valgum / varum
- Principles of Total Knee Replacement (TKR)

9. Ankle and foot

- Metatarsalgia
- Flat foot
- Carpus foot
- Hallux valgus
- CTEV
- Ankle sprains

10. Fractures and joint injuries

- Principles of acute fracture care
- Conservative management of the following:
 - Pediatric fractures
 - Injuries of shoulder, upper arm and elbow
 - Injuries of forearm and wrist
- Neurosurgery
- Injuries of Spine
- Injuries of Pelvis
- Injuries of Hip and Femur
- Injuries of Knee.
- Leg Injuries
- Injuries of ankle and foot

MUSCULOSKELETAL SURGERIES

General Principal and Orientation –

1. Operations on joints
2. Meniscectomy, laminectomy, patellectomy, total knee and hip replacement
3. Malformations of spine & spinal cord
4. Surgeries for disc disorders
5. Amputations for upper and lower extremities.
6. Surgical management of fractures & other injuries
7. Orthopaedic implants- designs, materials, indications, post operative assessment

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PHYSIOTHERAPY ASSESSMENT

Review of General assessment – patients history, observation, palpation, examination

- Pain assessment
- Sensory and motor assessment
- Balance assessment
- Assessment of tone, flexibility and tightness
- Muscle Length Testing
- Reflex testing
- Limb length measurement
- Postural assessment
- Examination of movements, Range of Motion
- Clinical Gait assessment
- Functional assessment and outcome scales and questionnaires
- X-Ray, MRI, CT report reading & analysis
- Physical Disability evaluation and ICF classification. (in brief)
- Clinical Orthopaedic testing

Advanced physiotherapy Treatment approaches

- Mobilization techniques: Mulligan Cyriax, Maitland
- Combined movement therapy
- Muscle energy techniques and its applications
- Positional release techniques
- Myofascial release
- Trigger point therapy
- Group exercises
- Physiotherapy in home setting and use of assistive aids
- External aids, appliances, and adaptive self-help devices:
- Prescription, biomechanics, checkout and training.
- Community based rehabilitation in musculoskeletal disorders.
- Wheelchair prescription and advanced skills
- Transfer techniques.

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Master in Physiotherapy (MPT) Second Year
Practical (Common to all specialization/discipline)
Subject Code : MPT-205
Min. Hrs :- 200 Hrs.

Practical - Clinical Examination

It should be aimed for assessing competence and skills of physiotherapeutic intervention and procedures as well as testing students ability to make relevant and valid observations, diagnostic & prognostic interpretations and inference, clinical, laboratory or experimental work relating to this her subject.

1. Assessment, evaluation and diagnosis
2. Practice and application of physiotherapeutic system in hospital/centre/ institution.
3. Application of advance physiotherapeutic maneuvers like manipulation (maitland, cyriax, mulligan etc.) and various neurological interventional concepts (bobath, NDT etc.).
4. Clinical reasoning, decision making, evidence based practice and recording system.
5. Major Elective long case aimed at examining clinical skills and competency of the candidate for undertaking independent work as specialist
6. Short case from area of Elective to assess patient management skills.

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Master in Physiotherapy (MPT) Second Year
Dissertation (Common to all specialization/discipline)
Subject Code : MPT-206

Every candidate pursuing MPT degree course is required to carry out research 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. Topic for dissertation shall be assigned by the guide.

Fulltime recognized PG Teacher/Guide from other institute can act only as a co-guide, If the subject of Thesis entails collaboration with other departments or specialties, the collaborative portion of the work will be supervised by Co-Guide, designated by the University Institute of Health Sciences in consultation with the Guide. Where a Co-Guide is involved, the Thesis will be certified jointly by the Guide & Co-guide.

Every candidate shall submit synopsis to the University in the prescribed Performa containing particulars of proposed dissertation work, within 6 months from the date of commencement of the course on or before the dates notified by the university. The synopsis shall be sent through the proper channel. Such synopsis will be reviewed and the university will register the dissertation topic.

No change in the dissertation topic or guide shall be made without prior approval of the university. Guide will be only a facilitator, advisor of the concept and hold responsible in correctly directing the candidate in the methodology and not responsible for the outcome and results.

The dissertation should be written under the following headings.

1. Introduction
2. Aims or objectives of study
3. Review of literature
4. Material and methods
5. Results
6. Discussion
7. Conclusion
8. References
9. Master and Chart & Table (If Applicable)
10. Annexure (If Applicable)


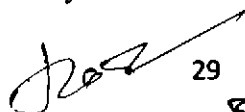




The written text of dissertation/ research project shall not be less than 50 pages and shall not exceed 120 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing on one side of bond paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. A declaration by the candidate for having done the work himself should also be included, and the guide, head of the department and Director/Coordinator of the institute shall certify the dissertation/ research project.

Every candidate is required to give power point presentation before final submission of dissertation. Four copies of Dissertation/research project shall be submitted to the university, through proper channel, along with a soft copy (CD), 6 months before the final examination. It shall be assessed by two examiners appointed by the university, one internal and one external. There will be a power point open presentation of the submitted dissertation as per the schedule given by the university. This presentation shall be jointly evaluated by external and internal examiner as per the criteria given below:

Objective(s) of the work done	50 Marks
Methodology adopted	100 Marks
Result and Discussion	100 Marks
Conclusion & outcome	50 Marks
Total	300 Marks

To pass in the dissertation a student must secure 150 marks.

If the student failed to secure the minimum passing marks he will resubmit the dissertation 1½ month before the supplementary exam.


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Master in Physiotherapy (MPT) Second Year
Clinical Lab Practices
(Common to all specialization/discipline)
Min. Hrs -: 440 Hrs.

Post graduate students must know :

- Assessment, evaluation and diagnosis.
- Practice and application of physiotherapeutic system in hospital/ institution.
- Application of advance physiotherapeutic maneuvers like manipulation and various neurological interventional concepts.
- Clinical reasoning, decision making, evidence based practice and recording system.

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Master in Physiotherapy (MPT) Second Year
Teaching Skills/ Seminars/Symposia/Journal Club etc.
(Common to all specialization/discipline)
Min. Hrs -: 260 Hrs.

(a) Teaching Skills

Candidates should be encouraged to teach undergraduate students if any. This performance will be based on assessment by the faculty members of the department and from feedback from the undergraduate students.

(b) Seminar/Symposia

- Seminars /recent advance presentation will be held every week, however, its timings are subject to clinical schedule. Topics must be well researched and must include common knowledge, recent advances, analysis and references.
- PG students should present minimum of two seminars (One in general and one in elective area) and Internal Assessment marks with depend on better topic selection and presentation.

(c) Journal Review Meeting (Journal Club):

The ability to do literature search, in depth study, presentation skills, and use of audio-visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting.

(d) Work diary / Log Book

Every student shall maintain a work diary and record his/her participation in the training programmes 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 practice, if any conducted by the candidate by the student.

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Master in Physiotherapy (MPT) Second Year
Neurological Disorders & Management-I
Subject Code : MPT-203N
Min. Hrs -: 180 Hrs.

NEUROLOGICAL DISORDERS

**Introduction, etiology, Path physiology,
Clinical presentation, conservative management & complications of the following
clinical conditions:**

- Congenital & hereditary Disorders
- Disorders of cerebral circulation
- Head Injury
- Spinal Cord Injury
- Disorders of Peripheral nerves
- Disorders of cranial nerves
- Disorders of muscles

Investigations

**Orientation and Introduction, Physical basis, normal result & common abnormal
responses, (in brief)**

- Skull X ray
- Computerized Tomography
- Magnetic Resonance Imaging
- Intracranial Pressure monitoring
- Evoked Potentials
- EMG/ NCV
- Lumbar puncture
- Common Laboratory tests in Neurological disorders

NEUROSURGICAL DISORDERS

1. General Principles of neurosurgery
2. Disorders of CSF Fluid & circulation
3. Cerebral malformations
4. Spasticity management
5. Surgical repair of peripheral Nerves
6. Muscle lengthening/ Release
7. Management of an unconscious Patient
8. ICU management of a neurologically ill patient

PHYSIOTHERAPY ASSESSMENT

Perform thorough Physiotherapy assessment & list deficiencies

- Design individualized goals for the patient
- Rationalize the outcome of the assessment
- Document systematic, meaningful, accurate written records of the patient

1. Review of General assessment

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2. Assessment of Higher mental functions
3. Neurodevelopment assessment
4. Pain assessment
5. Sensory assessment
6. Assessment of Tone, flexibility, tightness
7. Motor Control assessment
8. Muscle Length Testing
9. Postural assessment
10. Limb length measurement
11. Range of Motion
12. Balance assessment
13. Coordination assessment
14. Reflex Testing
15. Cranial nerve testing
16. Nerve Tension testing
17. EMG/ NCV report reading & analysis
18. Clinical Gait assessment
19. Functional assessment
20. Physical disability evaluation (in brief)

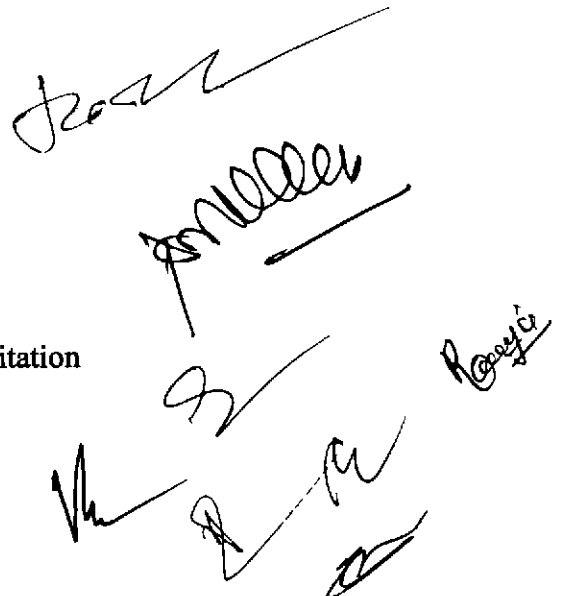
PHYSIOTHERAPY MANAGEMENT

Review of Basic Techniques:

1. Stretching
2. Strengthening
3. Passive movements
4. Active exercise training
5. Assisted Resisted Exercise training
6. Resisted exercise training
7. Postural Re-education
8. Electrotherapy Modalities

Advanced Physiotherapy Treatment approaches:

1. Neurodevelopment technique
2. Bo bath
3. Vojta
4. Brunnstrom
5. PNF
6. Rood's Approach
7. Pain management
8. Gait Training
9. Wheelchair Prescription
10. Biofeedback
11. Hydrotherapy
12. Relaxation technique
13. Pediatric Neurophysiotherapy
14. Geriatric Neurophysiotherapy
15. Assistive Technologies and its role in Neurorehabilitation
16. Prosthetics and Orthotics in Neurorehabilitation
17. Wheelchair skills- Basic



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Master in Physiotherapy (MPT) Second Year
Neurological Disorders & Management-II
Subject Code : MPT-204N
Min. Hrs -: 180 Hrs.

Objective:

On completion of the study of this subject the student should be able to:

- Correlate the clinical manifestations to the organ of dysfunction of the nervous system
- To understand the conservative & surgical management of the Neurological conditions as relevant to physiotherapy.

Following are the topics to be included but not limited to:

NEUROLOGICAL DISORDERS

Introduction, epidemiology of disease pattern, Path physiology, Clinical presentation, conservative management & complications of the following clinical conditions:

1. Degenerative disorders
2. Movement disorders
3. Autoimmune disorders
4. Infectious disorders of nervous system
5. Balance disorders
6. Disorders of spine & spinal cord
7. Metabolic & Nutritional disorders
8. Disorders of nervous system due to drugs & chemical agents
9. Tumors
10. Epilepsy
11. RSD
12. Brief outline on Psychiatric disorders

NEUROSURGICAL DISORDERS

Orientation and General principles of Neuro surgery

1. Intracranial abscess
2. Malformations of spine & spinal cord
3. Surgeries for disc disorders
4. Decompression surgeries for tumors
5. Stereotactic surgery
6. Image guided frameless stereotaxy
7. Psychosurgery

PHYSIOTHERAPY ASSESSMENT

1. Review of General assessment
2. Pain assessment
3. Sensory and motor assessment
4. Assessment of Tone, flexibility, tightness
5. Muscle Length Testing
6. Postural assessment
7. Limb length measurement
8. Range of Motion

9. Balance assessment
10. Coordination assessment
11. Reflex Testing
12. Cranial nerve testing
13. Nerve Tension testing
14. EMG/ NCV report reading & analysis
15. Clinical Gait assessment
16. Functional assessment
17. Environmental assessment

PHYSIOTHERAPY MANAGEMENT

Advanced Treatment approaches

- Neural mobilization technique
- Balance & Coordination training
- Vestibular training
- Cognitive and Perceptual disorders
- Environmental modifications
- Muscle energy techniques
- Group exercises
- Wheelchair skills- Advanced

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Master in Physiotherapy (MPT) Second Year
Cardiopulmonary Disorders & Management-1
Subject Code : MPT-203C
Min. Hrs :- 180 Hrs.

CARDIOLOGY

Epidemiology, Pathomechanics, clinical presentation, relevant diagnostic test (ECG, Echo cardiography, cardiac catheterization, Radionuclide scanning, stress testing, ABG, Labs etc.) and medical management of disorders of the cardiac system.

1. Assessment of symptoms of heart disease
2. Disorder of cardiac rate, Rhythm and condition
3. Cardiac Arrest
4. Cardiac failure
5. Shock
6. Rheumatic fever
7. Congenital heart disease
8. Disease of the heart valve
9. Infective Endocarditis
10. Ischemic heart disease
11. Hypertension
12. Orthostatic hypotension
13. CPR
14. Pericarditis
15. Heart disease in pregnancy
16. Degenerative arterial disease
17. Inflammatory arterial disease
18. Raynaud's disease
19. Venous thrombosis
20. Peripheral Vascular disease
21. Cardio myopathy
22. Disease of the pericardium

PHYSIOTHERAPY ASSESSMENT & MANAGEMENT

This course provide student with the principal of physiotherapy management in disorder of the cardiopulmonary system and the application of these principal in specific disorders. Through lecture, case conferences, journal discussion and class discussions students will be able to set up a treatment programme tailored to the patient's needs.

GENERAL PRINCIPAL

1. P.T. Assessment
2. Mobilization and Exercises (Strengthening conditioning and endurance)
3. Body positioning
4. Airway Clearance Techniques
5. Postural Drainage
6. Forced Expiratory technique
7. Breathing Exercise
8. Percussion and vibration
9. Exercise training and Exercise testing
10. Bio feed back
11. Respiratory Muscle training
12. Ventilator

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13. Humidification and Aerosol therapy
14. Applying and Evaluating Bronchial Hygiene therapy
15. outcomes of pulmonary Rehabilitation
16. Functional Adaptations
17. Prevention of Morbidity and Mortality with the use of physical aids
18. PT in ICU
19. Techniques for facilitating ventilatory pattern
20. Respiratory therapy equipment and adjuncts to Cardiopulmonary therapy
21. Principal and prescription of cardiac Rehabilitation
22. Principal and prescription of pulmonary Rehabilitation
23. PT in neonatal ICU
24. Diabetes and Exercise

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Master in Physiotherapy (MPT) Second Year
Cardiopulmonary Disorders & Management-II
Subject Code : MPT-204C
Min. Hrs :- 180 Hrs.

PULMONOLOGY

Epidemiology, pathomechanics, clinical presentation, relevant diagnostic tests (PFT, Labs etc.) and medical management of disorders of the pulmonary system.

1. Obstructive pulmonary disease
2. Infection of the Respiratory system
3. Interstitial and infiltrative pulmonary disorders
4. Pulmonary disorders due to exposure to Organic and inorganic pollutants.
5. Pulmonary disorders due to systemic inflammatory disease
6. Pulmonary vascular disease
7. Disease of pleura
8. Respiratory failure
9. Supplemental Oxygen and Oxygen delivery devices in Chronic Respiratory Disease.
10. Neuromuscular and Skeletal disorders leading to Global Alveolar Hypoventilation
 - Myopathies
 - Spinal muscular Atrophies
 - Poliomyelitis
 - Motor Neuron Disease
 - HSMN
 - Kyphoscoliosis
 - Pectus Carinatum
 - Pectus Excavatum
11. Pathophysiology of paralytic – Restrictive pulmonary syndromes
12. Conventional Approaches to managing n-M-Ventilatory failure
13. Mechanical ventilation: Concept, Physiological effect and complications

CARDIOTHORACIC SURGERY

Surgical management of the above conditions, indication, contraindications for surgery, precautions after surgery. Also included:

1. Close v/s open heart surgery
2. Incisions
3. Preoperative Assessment of Patient
4. Pre and post op blood gas exchange
5. Haemodynamic performance of CTVS Patients
6. Emergencies in CTVS
7. A-V Shunt
8. Heart Transplant
9. Left Ventricular Assistive devices
10. Procedure on Sternum, Chest wall, diaphragm, mediastinum, oesophagus
11. Cardiopulmonary Bypass
12. Maintaining and Removing Artificial Airways

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R. M. M.
R. M. M. Roy

PHYSIOTHERAPY ASSESSMENT & MANAGEMENT

This course provide student with the principal of physiotherapy management in disorder of the cardiopulmonary system and the application of these principal in specific disorders. Through lecture, case conferences, journal discussion and class discussions students will be able to set up a treatment programme tailored to the patient's needs.

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Master in Physiotherapy (MPT) Second Year
Traumatology & Medical Conditions
Subject Code : MPT-203S
Min. Hrs :- 180 Hrs.

Course Objective

- Analyze and interpret various sports injuries/pathomechanics and apply appropriate therapeutic techniques on and off the field.
- Devise/modify various exercises for sports personnel and prevent injuries by applying proper dynamic during play.
- Analyse the effect of therapeutic modalities, indicators and contraindications and precaution to ensure safety.
- Demonstrate skills of assessment and management in both acute and long standing injury conditions.
- Carry out research in a particular aspect /specific event based on biomechanical/ physiological and other variables.

Units-I : Assessment Principles : detailed physical assessment of spine, hip and thigh, knee and leg, foot and ankle, shoulder and arm, elbow and forearm, wrist and hand.

Units-II : Common Back Problems in injuries: PIVD, Spondylosis, spondylosiethesis, spinal canal, stenosis, postural strain, back injuries in sports, ankylosing spondylitis, scoliosis, wishplash injuries, cervical spin etc.

Units-III : Hip and Thigh Problems and Injuries: Perthes disease, coxa vara, ligament and muscle injuries in sports, irritable hip, arthritis, congenital dislocation of the hip etc.

Units-IV : Knee and leg Problems and Injuries: Arthritis, genu valgum and varum, meniscal injuries ligament and muscle injuries, loose bodies, bursitis etc.

Units-V : Ankle and foot problems and injuries: Pain in heel, pain behind heel, plantar fasciitis, motion's neuralgia, pes planus and pes cavus, CTEV, muscle and ligament injuries.

Units-VI : Shoulder and arm Problems and Injuries : Rotator cuff injuries, peri arthritis, bursitis, painful arc syndrome.

Units-VII : Elbow and forearm injuries and problems: Cubitus valgus and varus, arthritis, tennis and golfer elbow and other injuries.

Units-VIII : Wrist and Hand : Claw hand, Dupuytren's contracture, trigger finger, arthritis, De Quervain's disease, base ball finger, Mallet finger, cricket finger, drop finger.

Units-IX : Common fractures and dislocations: Fractures and dislocations of Upper limb, Lower limb, spine and stress fractures.

Units-X : Diagnosis and Management of Skin conditions of athletes: Fungal infections, boils, cellulites, sunburn etc.

Units-XI : Female specific Problems: Sports amenorrhoea, injury to female reproductive tract, menstrual problems, eating disorders, osteoporosis etc.

Units-XII : Common Diseases: Common cold, fever, diarrhea, dysentery amoebiasis sore throat, stress ulcers, skin infection etc.

Master in Physiotherapy (MPT) Second Year
Fundamental in sports & Rehabilitation
Subject Code : MPT-204S
Min. Hrs - : 180 Hrs.

Unit-I : Brief idea about some common sports: Terminology, methodology, rules, equipments and infrastructure.

Cricket, football, hockey, tennis, badminton, table tennis, wrestling, boxing, track and field, gymnastic volleyball, basketball and aquatic sports.

Unit-II : Physics in sports : Type of motion, distance, speed, velocity, angular motion, acceleration, inertia, mass, newtons law of motion, force and its characteristics, classification, of force system couple composition and resolution of force system, function, projectile motion, levers and fluid mechanics.

Unit-III : Physiological response to exercise, Nutrition in sports.

Unit-IV: Biomechanics :

- Biomechanics of running
- Biomechanics throwing
- Biomechanics jumping
- Introduction to analysis equipment

Unit-V: Miscellaneous

- Psychological aspect in sports.
- Spirit and moral values, dropping in sports and performance enhancing drugs.
- Special aids in performance
- Body composition, its analysis and effects of sports.
- Protective equipment used in sports.

Dr. H. A. R.
Dr. S. R.
Dr. S. R.
Dr. S. R.
Dr. S. R.

PATTERN OF MODEL QUESTION PAPER FOR MPT

MASTER OF PHYSIOTHERAPY PART-I

Theory

Duration of Questions Paper	= 3 Hrs.	
Maximum Marks	= 80	
Minimum Marks	= 40	
No. of Questions		
No. of Long Questions	= 4 (Attempt any two)	- 2x20 = 40
No. of Short Answer Question	= 3 (Attempt any two)	- 2x 10 = 20
No. of very short answer questions	= 6 (Attempt any four)	- 4 x 5 = 20

Practical

Maximum Marks	=	160
Minimum Marks	=	80

Practical-A

Short case to assess investigative & diagnostic skills = 80 Marks

Practical-B

Short case to assess patient management skills = 80 Marks

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

MASTER OF PHYSIOTHERAPY PART-II

Theory

Duration of Questions Paper	= 3 Hrs.	
Maximum Marks	= 80	
Minimum Marks	= 40	
No. of Questions		
No. of Long Questions	= 4 (Attempt any two)	- 2x20 = 40
No. of Short Answer Question	= 3 (Attempt any two)	- 2x 10 = 20
No. of very short answer questions	= 6 (Attempt any four)	- 4 x 5 = 20

Practical

Maximum Marks	=	160
Minimum Marks	=	80

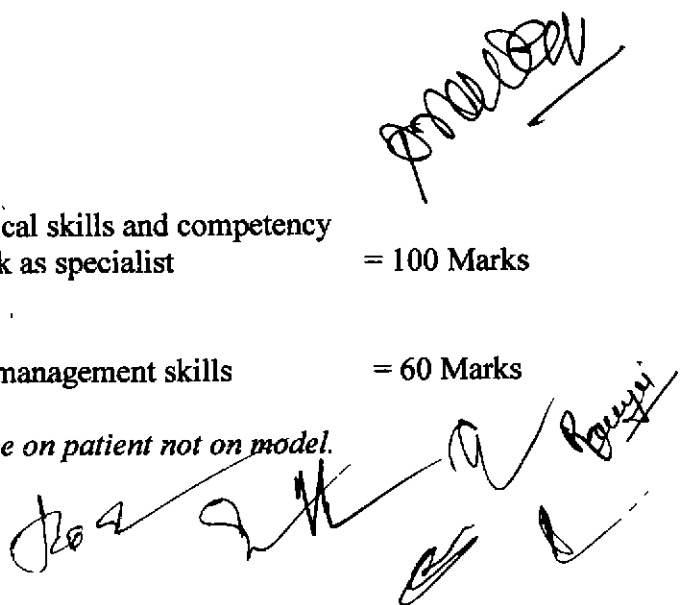
Practical-A

Major elective long case aimed at examining clinical skills and competency of the candidate for undertaking independent work as specialist = 100 Marks

Practical-B

Short case from area of elective to assess patient management skills = 60 Marks

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



RECOMMENDED BOOKS

1. Scientific basis of human movement – Gowitzke, Willams and Wilkins, Baltimore, 1988 3rd edition.
2. Clinical biomechanics of spine – White A,A and Panjabi-J.B Lippincot, Philadelphia 1978.
3. Kinesiology – Brunnstrom Singe, F.A. Davis- Philadelphia – 1966
4. Text book of work physiotherapy – Guyton, Prim Books Bangalore-1991 8th edition
5. Hand book of physiology in Aging- Masoro, C.R.C Press, 1981
6. Research for physiotherapists- Hicks C., Churchhill Living stone, Edingburgh 1995 Ed.\$
7. Introduction to Research in Health Sciences-Polgar S, Churchhill Livingstone, London, 1988.
- 8: Elements of Research in physical Therapy- Currier D.P, Willams & Wilkins, Baltimore, 1990 Ed.3
9. Hand book of Research Method – Sproull, Screcrow Press, 1998.
10. Physical therapy Research- Domholdt, W.B Saunders, Philadelphia. 1993
11. Public power & Administration – Wilenski, Hale & Iremonger, 1998.
12. Public Therapy administration & Management – Hickik Robert J.
13. Management Principles for physiotherapists – Nosse Lorry J.
14. Human neuroanatomy – Carpenter M.B, Williams & Wilkins, Baltimore, 1983
15. Physical management of Multiple Handicapped – Freser, William & Wilkins, Baltimore.
16. Physiotherapy in pediatrics – Shepherd R. Heinmann, London, 1980 2nd edition
17. Orthotics in neurological rehabilitation – Aisen, Demos Publication, New York 1992
Manual of nerve condition velocity techniques – De Lisa, Raven press, New York, 1982
18. Electrodiagnosis in diseases of nerve and muscle – Kimura J, F.A Davis, Philadelphia.
19. Mobilization of the extremity joints – Kaltenbore, Harper and Row, Philadelphia.1980
20. Chest physiotherapy in Intensive care unit – Makezie, Willams & Wilkins, Baltimore.
21. Cardiopulmonary symptoms in physiotherapy –Cohen M, Churchil, Livingstone, London-1988.
22. Physical rehabilitation: assessment and treatment – O’Sullivan, F.A Davis, Philadelphia 1994.
23. Neuro-rehabilitation – Farber, W.B Saunders, Philadelphia 1982
24. Orthopaedic physical therapy- Donatteli, London Churchill Livingstone, 1994.
25. Gaits analysis – Perry J., Black Thorofare, New Jersy, 1992
26. Bio – feedback- A practitioners guide - Kerb D, Guiford press.
27. The neural basis of motor control – Black I, Churchill Livingstone, London-1987
28. Physical therapy management of Parkinson’s disease – Turnbull Gerode , Churchill, Livingstone, London-1994
29. Abnormal postural reflex activity caused by Brain lesions – Bobath b. Aspen publications, Rockville, 1897.
30. Disorders of voluntary muscle- Eagel, Churchill, Livingstone, Edingburgh 1988.
31. A Clinician’s view of neuro muscle disorder – Brook M.H Williams and Wilkins, Baltimore 1986.
32. Proprioception, neuro muscular facilitation techniques – Knot M. and Voss, Harper and Row, New York 1972 2nd edition.

33. Stroke rehabilitation – Laidler, Capman and Hall, London 1994.
34. Motor relearning programme for stroke – Carr, Aspen publication, Rock ville, 1987.
35. Adult hemiplegia: evaluation and treatment – Bobath B, Heinmann, London 1988.
36. Paraplegia and tetraplegia – Brombley, Churchill, Livingstone, Edingburgh 1991
37. Child with spina Bifida – Anderson E.M. and Spain B., Methun, London 1977.
38. A manual of neonatal intensive care – Robert N.R.C, Edward Arnold, London 1986
39. Measurement in physical therapy – Churchill, Livingstone, London 1988.
40. Soft tissue pain and disability – Cailliet Rene, Jaypee Brothers, New Delhi 1992
41. Myofascial pain and dysfunction – Travell, Willams & wilkins, Baltimore 1983
42. Physical therapy of the low back – Twomey, Churchill, Livingstone, London 1983
43. Sport injuries of the shoulder – Souza Thomas A., Churchill, Livingstone, London 1994
44. Vertebral manipulation – Matiland G.D, Boston, Butterworth & Co. Boston, 1997.
45. Peripheral manipulation - Matiland G.D, Boston, Butterworth & Co. Boston, 1997.
46. Sports and physical therapy – Bernhardt Donna, Churchill, Livingstone, London 1995
47. Hand rehabilitation – Christine- Churchill, Livingstone, London 1995
48. Cardiopulmonary symptoms in physiotherapy practice – Cohen M., Churchill, Livingstone, London 1988
49. Clinical application of ventilatory support – Kinby Churchill, Livingstone, New York 1990
50. Cardiopulmonary Physiotherapy – Irwin, C.V., Mosby, St. Louis 1990.
51. Pulmonary rehabilitation: guidelines to success – Hoidkins, Butterworth, Boston, 1984.
52. Cardiac rehabilitation – Amundsen I.R, Churchill, Livingstone, London 1988
53. Obstetrics and gynaecologic physical therapy – Wilder Elnine, Churchill, Livingstone, New York 1994
54. Physiotherapy in obstetrics and gynaecology – Polden & Mantle, Jaypee Brothers, New Delhi 1994
55. Physical therapy of the cancer patient – McGaryex charles Churchill, Livingstone, New York 1989.
56. Industrial therapy – Key G.L, Mosby, St. Louis 19887.

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