

**THE TAMIL NADU DR. M.G.R MEDICAL UNIVERSITY  
CHENNAI – 600 032**



**REGULATIONS AND SYLLABUS FOR  
MASTERS OF PHYSIOTHERAPY (MPT) DEGREE COURSE**

**THE TAMIL NADU DR. M.G.R MEDICAL UNIVERSITY  
CHENNAI – 600 032**

**THE EMBLEM**



**The University emblem symbolizes various systems of medicine and Para Medical systems. It also depicts the global character of preventive, Promotive and curative medicine. The motto “HEALTH FOR ALL” Reflects all the objectives of this medical university.**

## CURRICULUM OF MASTER OF PHYSIOTHERAPY COURSE (2 YEARS)

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## **REGULATIONS FOR THE MASTER OF PHYSIOTHERAPY SPECIALITY DEGREE COURSES**

In exercise of the powers conferred by Section 44 of the Tamil Nadu Dr.M.G.R Medical University, Chennai, Act, 1987 (Tamil Nadu Act 37 of 1987), the Standing Academic Board of The Tamil Nadu Dr. M.G.R Medical University, Chennai hereby makes the following Regulations:-

### **1. SHORT TITLE AND COMMENCEMENT**

**THESE REGULATIONS SHALL BE CALLED “THE REGULATIONS FOR THE MPT POST GRADUATE PHYSIOTHERAPY SPECIALITY DEGREE COURSE OF THE TAMIL NADU Dr.M.G.R MEDICAL UNIVERSITY, CHENNAI”.**

These regulations shall come into force from the academic year 2010-2011.

The Regulations and the Syllabi are as prescribed under these regulations and are subject to modification by the Standing Academic Board from time to time

### **2. AIM AND OBJECTIVES**

#### **Aim:**

The Master of Physiotherapy Program is directed towards rendering training in the respective Physiotherapy Specialty so as to enhance individual competence in order to fulfill requirement and to meet the global standards of Physiotherapy education and practice.

#### **Objectives:**

- 1.** To gain in knowledge of the human body related Basic Medical and Physiotherapeutic sciences relevant to the concerned specialties.
- 2.** To gain in knowledge of movement dysfunction of human body and evidence based Physiotherapeutic management for movement dysfunction
- 3.** To develop skills in Physiotherapy assessment pertaining to their specialty by relevant current physiotherapeutic concepts.
- 4.** To plan and implement appropriate Physiotherapeutic intervention for all clinical conditions related to respective specialty in acute and chronic phases, critical care, indoor and outdoor institutional care and independent practice.

5. To develop skills as a self-directed learner, recognize continuous education needs, select and use appropriate learning resources.
6. To develop ability to teach post graduate and undergraduate Physiotherapy students
7. To demonstrate managerial, administrative skills and legislation applicable to compensation for functional disability and appropriate certification
8. Acquainting a student with concept of quality of care at the institutional as well as the community levels.

### **3. SPECIALITIES OFFERED:**

Candidates shall be examined in one of the following Specialty branches

#### **M.P.T**

- Branch I Physiotherapy in Orthopedics
- Branch II Physiotherapy in Neurology
- Branch III Physiotherapy in Cardio - Respiratory
- Branch IV Physiotherapy in Pediatrics
- Branch V Sports Physiotherapy
- Branch VI Physiotherapy in Obstetrics and Gynaecology
- Branch VII Physiotherapy in Hand conditions
- Branch VIII Community Physiotherapy
- Branch IX Geriatric Physiotherapy

### **4. COURSE OUTLINE**

The Masters Degree in Physiotherapy is a two year program consisting of classroom teaching, self academic activities and clinical postings. In the first year theoretical basis of fundamental Physiotherapy subjects are refreshed. In the second year, the students learn on the clinical conditions, physiotherapy assessment and advanced techniques in their specialty. During these two years, the students will be posted in their area of specialty. The learning program includes seminars, journal reviews, case presentations, case discussions and classroom teaching. Some of the clinical postings are provided at other reputed centers in the country in order to offer a wider spectrum of experience. The students are encouraged to attend conference and workshop to enhance their knowledge during their entire course of the study. University examinations are held at the end of first and second year. To fulfill their course completion, the students are required to complete and submit their dissertation.

## **5. ELIGIBILITY**

Candidates admitted into the Master in Physiotherapy course should have passed the BPT degree examination of this university or an examination of any other university accepted by the authority of this university as equivalent thereto.

Candidates who have passed BPT Examination from other than the “The Tamil Nadu Dr.M.G.R Medical University” shall obtain an eligibility certificate from this university by remitting the prescribed fees along with the application form before seeking admission to any one of the affiliated institution.

## **6. UPPER AGE LIMIT:**

There is no upper age limit.

## **7. FITNESS CERTIFICATE**

Every candidate before admission to the course shall submit to the principal of the institution a certificate of medical fitness from an authorized medical officer that the candidate is physically fit to undergo the M.P.T course and does not suffer from any contagious disease. Student with disability should produce the disability certificate issued by the duly constituted district medical board.

## **8. INTAKE OF STUDENTS**

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

## **9. REGISTRATION**

A candidate admitted to the course in any of the affiliated institutions of Tamil Nadu Dr.M.G.R. Medical University, Chennai shall register with the university by remitting the prescribed fees along with the application form for registration duly filled in and forwarded to the controller of examination of this university through the head of the affiliated institutions within the stipulated date.

## **10. DURATION OF THE COURSE**

The period of certified study for Master in Physiotherapy shall be a full time course and its duration shall extend over a period of two academic years for the award of the degree

## **11. MEDIUM OF INSTRUCTION**

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

## **12. COMMENCEMENT OF THE COURSE**

The course will commence from April 1<sup>st</sup> of every year

## **13. CUT OFF DATE FOR ADMISSION**

Last date of Admission to Master in Physiotherapy is 31<sup>st</sup> May of each year

## **14. WORKING DAYS IN AN ACADEMIC YEAR**

Each academic year shall consist if not less than 240 working days

## **15. METHODS OF TRAINING**

Post graduate students shall be trained to acquire responsibilities in the management of patients with ethical standards of practice. They will be made to actively involve themselves in seminars, case presentations, journal review meetings and clinical discussions with reflective practice. Every candidate will be given training in teaching of under graduate students. They are specially trained to perform research activities in their specialty.

## **16. MONITORING THE PROGRESS OF STUDIES**

### **a) Maintenance of Log Book**

Every post graduate shall maintain a record of skills (Log book) he/she has acquired during the two years training period certified by the various heads of the department where he/she has undergone training. The candidate is also required to participate in the teaching and training program for the Undergraduate students. In addition the Head of the department shall involve the post graduate students in seminars and journal, group discussions and participation in conferences. The Head of the department shall scrutinize the log book once in every three months. At the end of the course, the candidate should summarize the contents and get the log book certified by the Head of the department

**b) Model checklist are given in the appendix 1 to 7 at the end of the syllabus for reference**

### c) Periodic tests

The college may conduct periodic tests including written theory papers, practical and orals in the pattern of university examination. Records and marks obtained in such tests will be maintained by the Head of department and sent to the university, when called for.

## 17. ATTENDANCE REQUIREMENTS FOR ADMISSION TO EXAMINATION

No candidate shall be permitted to appear for the examination unless he/she puts in 90% attendance during his/her period of study and training in the affiliated institutions recognized by this university and produces the necessary certificates of study attendance and progress from head of institution.

## 18. CONDONATION OF ATTENDANCE

There shall be no Condonation of attendance in post graduate courses

## 19. COMMENCEMENT OF EXAMINATIONS

There shall be two university examination sessions in an academic year, viz 15<sup>th</sup> March and 15<sup>th</sup> September. If the date of commencement of examination falls on a Sunday or Saturday or declared public holidays, the examination shall begin on the next working day.

## 20. SCHEME OF EXAMINATION

| YEAR | SUBJECT   | THEORY                |               | PRACTICAL |               | ORALS     |               | TOTAL     |               |
|------|---|-----------------------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|
|      |   | Max Marks             | Passing Marks | Max Marks | Passing Marks | Max Marks | Passing Marks | Max Marks | Passing Marks |
| I    | Paper I<br>Applied Basic Sciences                 | 100                   | 50            | ***       | ***           | ***       | ***           | 100       | 50            |
|      | Paper II<br>Physiotherapeutics                    | 100                   | 50            | 100       | 50            | 50        | 25            | 250       | 125           |
| II   | Specialty Paper I<br>Physiotherapy Assessment     | 100                   | 50            | 100       | 50            | 50        | 25            | 250       | 125           |
|      | Specialty Paper II<br>Physiotherapy Interventions | 100                   | 50            | 100       | 50            | 50        | 25            | 250       | 125           |
|      | Dissertation                                      | APPROVED/NOT APPROVED |               |           |               |           |               |           |               |



**a) Scheme of theory examination**

**Maximum marks: 100 (No choice)**

Duration: 3 Hours

1. Long essay (2 Questions) – 2x 20 = 40 marks
2. Short notes (10 Questions) – 10x 6 = 60 marks

**b) Scheme of practical examinations**

**I YEAR (General)**

**PRACTICAL 1 - PHYSIOTHERAPEUTICS**

(Practical exam is emphasized only on Exercise and Electrotherapy)

- One long case - 60 marks
- One short case - 40 marks
- Orals - 50 marks

**II YEAR (Specialty)**

**PRACTICAL 1 - PHYSIOTHERAPY ASSESSMENT**

(Practical exam is emphasized **only** on Physiotherapy Assessment)

- One long case - 60 marks
- One short case - 40 marks
- Orals - 50 marks

**PRACTICAL 2 - PHYSIOTHERAPY INTERVENTIONS**

(Practical exam is emphasized **only** on Physiotherapy Interventions)

- One long case - 60 marks
- One short case - 40 marks
- Orals - 50 marks

**c) Dissertation – Approved or Not Approved**

**21. CRITERIA FOR QUESTION PAPER SETTING/ ANSWER SHEET EVALUATION**

**a) CRITERIA FOR QUESTION PAPER SETTER/ ANSWER SHEET EVALUATOR**

**I YEAR (General)**

For all theory subjects, the question paper setter/ answer sheet evaluator must have a minimum of 5 years of post graduate teaching experience after completion of Master of Physiotherapy.

### b) DISTRIBUTION OF THEORY MARKS FOR EACH SUBJECT

| Year | Paper                                      | Subjects | Distribution of marks                             | Total marks |     |
|------|--|----------|---|-------------|-----|
| I    | Paper I<br>Applied Basic<br>Sciences       | 1        | Bio Statistics and Research<br>Methodology        | 25          | 100 |
|      |  | 2        | Biomechanics and<br>Pathomechanics                | 25          |     |
|      |  | 3        | Ergonomics  | 25          |     |
|      |  | 4        | Nutrition and Exercise<br>Physiology              | 25          |     |
|      | Paper II<br>Physiotherapeutics             | 1        | Manual therapy                                    | 25          | 100 |
|      |  | 2        | Exercise therapy                                  | 25          |     |
|      |  | 3        | Electro therapy                                   | 25          |     |
|      |  | 4        | Electrophysiology                                 | 25          |     |
| II   | Paper I<br>Physiotherapy<br>assessment     | 1.       | Anatomy and Physiology                            | 25          | 100 |
|      |  | 2.       | Clinical condition                                | 25          |     |
|      |  | 3.       | Physiotherapy assessment                          | 50          |     |
|      | Paper II<br>Physiotherapy<br>interventions | 1        | Foundational concepts and<br>condition management | 50          | 100 |
|      |  | 2.       | Special techniques                                | 50          |     |

### c) PREPARATION OF ANSWER KEY

For each question, the question paper setter must prepare the relevant answer key with the main content of the answer and the split up of marks for each and every contents of the answer with the appropriate references.

## 22. CRITERIA FOR EXAMINERS

### I YEAR (General)

For the practical subject in the first year, there shall be 2 examiners with minimum of 5 years of post graduate teaching experience after completion of Master of Physiotherapy. One of them shall be external and the other shall be internal preferable from the same college or as decided by the university.

### II YEAR (Specialty)

For all practical subjects in the second year, there shall be 2 examiners. One internal examiner will be, preferably from the same college or as decided by the university with a minimum of 5 years of teaching experience after completion of Master of Physiotherapy with concerned specialty. The other external examiner shall be from concerned medical specialty with 3 years teaching experience or Physical Medicine and Rehabilitation specialist with 3 years teaching experience.

## 23. MARKS QUALIFYING FOR A PASS

The candidate should have obtained 50% in theory, practical, oral examinations separately. Further, he/she should have obtained 50% marks overall in the subject to qualify for a pass.

## 24. DISSERTATION

Every candidate presenting himself for the examination for the first time shall submit four copies of a dissertation not exceeding 2500 words consisting of the result of his own study of important investigation carried out by him under the guidance of a recognized faculty together with a review of recent advances pertinent to that theme.

The topic of the dissertation should be submitted at end of the first month of second year. The candidate should also inform the name of the guide for the dissertation to the University while submitting the dissertation topic.

If any changes in the dissertation topic, the same has to be informed before at the end of the third month of second year.

The dissertation should be submitted three months in advance duly signed by the professor of that branch and the same has to be forwarded to the controller of examination through the dean or principal of the college three months prior to the Examination.

No marks will be allowed for dissertation. The board of examiner should mark the dissertation either approved or not approved.

If the dissertation is not approved or rejected by the majority of the examiners, the result shall be withheld till the resubmitted dissertation is approved.

If the candidates fail in the written/practical examination, but his/her dissertations approved, the approval of the dissertation shall be carried over to the subsequent Examinations.

**Criteria for recognition of MPT teacher/ guide** - MPT with five years of post graduate teaching experience working on a full time position at a recognized institution. The age of guide / teacher shall not exceed 62 years. The guide student ratio should be 1:3.

**Change of Guide** - In the event of registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the University.

## **25. CLASSIFICATION OF SUCCESSFUL CANDIDATES**

A candidate who obtains not less than 60% of the aggregate marks in the whole examination shall be declared to have passed the examination in the first class, provided they pass all the examinations prescribed for the course within a period of two academic years from the year of admission to the course. Candidates who secure less than 60 % of the aggregate marks in the whole examination shall be declared to be passed the examination in the second class, provided they pass all the examinations prescribed for the course within a period of two academic years from the year of admission to the course. Candidates who obtain 75% of the marks in the aggregate shall be deemed to have passed examination in first class with distinction provided they pass all the examinations prescribed for the course at first appearance. Candidates who pass all the examinations prescribed for the course in the first appearance only are eligible for ranking.

## **26. REVALUATION OF ANSWER PAPERS**

There shall be no revaluation of answer papers of failed candidates in the postgraduate examination

## **27. NUMBER OF APPEARANCES**

A candidate registered for 2 years post graduate degree course should qualify in the examination within four years of date of admission.

## **28. MIGRATION / TRANSFER OF CANDIDATE**

Request for transfer during the course of study will not be entertained under any circumstances

## **29. RE- ADMISSION AFTER BREAK OF STUDY**

- a) Candidates having a break of study of 5 years and above from the date of admission and more than 2 spells of admission of break will not be considered for re admission
- b) The five year period of break of study shall be calculated from the date of admission to the first discontinuation of the course by candidate

A candidate having a break of study shall be readmitted after satisfactory fulfillment of regulation of the university at the commencement of an academic year only and shall undergo the full duration of the course with no exemption in period of study and will be permitted to appear for the examinations as prescribed in regulations

## **30. COURSE CONTENT AND STRUCTURE**

### **PAPER I APPLIED BASIC SCIENCES**

This paper consists of 4 Modules:

- I Bio Statistics and Research Methodology
- II. Biomechanics and Pathomechanics
- III. Ergonomics
- IV. Nutrition and Exercise Physiology

#### **MODULE I**

#### **BIO STATISTICS, RESEARCH METHODOLOGY**

##### **PART I.**

##### **1. Research fundamentals**

Research in Physiotherapy  
Theory in Physiotherapy research  
Research ethics

##### **2. Research design**

Research problems, questions and hypotheses  
Research paradigms  
Design overview  
Research validity  
Selection and assignment of subjects

##### **3. Experimental designs**

Group designs  
Single system design

##### **4. Non experimental design**

Overview of non experimental research  
Qualitative research  
Epidemiology  
Outcome research  
Survey research

## **Part II Measurement and Analysis**

### **1. Measurement**

Measurement theory  
 Methodological research  
 Measurement tools for Physiotherapy research

### **2. Data Analysis**

Statistical reasoning  
 Statistical analysis of differences: The basics  
 Statistical analysis of differences: Advanced and special techniques  
 Statistical analysis of relationship: The basics  
 Statistical analysis of relationship: Advanced and special techniques

## **Part III Locating and Evaluating the Literature**

## **Part IV Implementing Research**

1. Implementing the projects
2. Publishing and presenting research

### **Recommended Books**

1. Rehabilitation Research: Principles and Applications by Elizabeth Domholdt (Elsevier Science Health Science Div, 2004)

## **Module II Biomechanics and Pathomechanics**

### **Part I Foundational concepts in Bio and Pathomechanics**

#### **Unit:**

1. Basic concepts in biomechanics
  2. Biomechanics of tissues and structures of the musculoskeletal system
    - Bone
    - Articular cartilage
    - Tendons and ligaments
    - Peripheral nerves
    - Skeletal muscle
  3. Functional adaptation of bone under pathological conditions
  4. Mechanics of joint and muscle action
  5. Body balance and equilibrium
- Part II Biomechanics and Pathomechanics of joints

#### **Unit:**

1. Upper extremity

2. Lower extremity
3. Vertebral column
4. Thorax and chest wall
5. Temporal mandible joint

### **Part III Biomechanics of integrated function**

#### **Unit:**

1. Gait
2. Posture
3. Arm as a whole

#### **Recommended books**

1. Basic biomechanics of the musculoskeletal system by Margareta Nordin and Victor H. Frankle, 2<sup>nd</sup> edition ( Lea and Febiger)
2. Kinesiology of the Human Body: Under Normal and pathological condition by Arthur Steindler, 5<sup>th</sup> edition (Charles C Thomas, 1977)
3. Joint Structure & Function :A comprehensive analysis by Cynthia C Norkin, Pamela K Levangie (Jaypee Brothers, 2006)
4. Brunnstrom's Clinical Kinesiology by Laura K. Smith & Don Lehmkuh, 5th edition (F A Davis, 1996)
5. The Physiology of the Joints by Kapandji & Matthew J Kendel (Churchill Livingstone, 2008)
6. Clinical Biomechanics of the Spine by Augustus A White & Manohar M Panjabi, 2<sup>nd</sup> Edition (Lippincott Williams & Wilkins; 1990)
7. Kinesiology :The mechanics and Pathomechanics of Human Movement by Carol Oatis (Lippincott Williams & Wilkins; 2008)
8. Kinesiology: Application to pathological motion by Soderberg, 2nd Edition (Wiliams & Wilkins, 1997)

### **Module III Ergonomics**

#### **Unit**

1. History of ergonomics
2. Worker care spectrum
3. Functional assessment
4. Weighted capabilities
5. Participation level
6. Postural examination
7. Job analysis
8. Work hardening programme
9. Exit assessment
10. Pre-employment screening
  - Job analysis
  - Job task analysis
  - Job site analysis

11. Work capacity analysis
12. Role of Physiotherapy in industrial set up
13. Workers functional capacity assessment
14. Industrial therapy
15. Educational programme for prevention of injury
16. Adult education
17. Injury prevention and ergonomics

### **Recommended books**

1. **Industrial Therapy** by Glenda L. Key, 1<sup>st</sup> Edition (Mosby)

## **Module IV Nutrition and Exercise physiology**

### **Part I Basic Exercise Physiology**

#### **Unit**

1. Introduction to exercise physiology
2. Nutrition and Performance
3. Energy transfer
4. Measurement of human energy expenditure
5. Systems of energy delivery and utilization
  - Pulmonary system
  - Cardiovascular system
  - Musculoskeletal
  - Nervous System
  - Endocrine system

### **Part II Applied Exercise Physiology**

#### **Unit**

1. Aerobic power training
2. Anaerobic power training
3. Special aids in performance and conditioning
4. Exercise at different altitudes
5. Exercise at various climatic conditions
6. Sport diving
7. Obesity and weight control
8. Exercise and aging
9. Clinical exercise physiology

### **Recommended Books**

1. **Exercise Physiology** by Mc Ardle, Katch & Katch (Lippincott Williams and Wilkins, 2000)
2. **Exercise Physiology: Exercise, Performance, and Clinical Applications** by Robert A. Roberts and Scott O Roberts William C Brown, 1997)
3. **Clinical Exercise Testing and Prescription Theory and Applications** by Scott O. Roberts, Peter Hanson (C RC Press, 1997)



## **PAPER II**

### **PHYSIOTHERAPEUTICS**

This paper consists of 4 Modules:

- Manual therapy
- Exercise therapy
- Electrotherapy
- Electrophysiology

#### **Module I 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)

###### **Unit**

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

### **Recommended Books**

1. **Grieve's modern manual therapy: The vertebral column** By Jeffrey Boyling and Grad Dip Man Ther (Churchill Livingston)
2. **Concern manual therapy books**

## **Module II Exercise Therapy**

### **Part I Foundational Concepts**

#### **Unit**

1. Application of Disablement and Enablement models in therapeutic exercise
2. Principles of self management and exercise instruction
3. Prevention, health and wellness

### **Part II Applied Science of Exercise and Techniques**

#### **Unit**

1. Range of motion
2. Stretching
3. Resisted exercise
4. Principles of aerobic exercise
5. Exercise for balance and posture
6. Aquatic exercises
7. Training with functional devices

### **Part III Evidenced Based Clinical Applications of Exercise and Techniques**

#### **Recommended books**

1. **Therapeutic Exercise: Treatment Planning for Progression** by Francis E. Huber, Christly. Wells (W.B. Saunders Company, 2006)
2. **Therapeutic Exercise: Foundations and Techniques** by Carolyn Kisner and Lynn Allen Colby (W.B. Saunders Company, 2007)
3. **Therapeutic Exercise, Moving Towards Function** by Carrie M. Hall and Lori Thein Brody (Lippincott Williams & Wilkins, 2004)

## **Module III Electrotherapy**

### **Part I Foundational Concepts in Electrotherapy**

#### **Unit**

1. Bioscience of therapeutic electrical currents
  - Basic physics
  - Basic principles of electricity
  - Types of current

- Classification of therapeutic electrical currents
  - Parameters of therapeutic electrical currents
2. Bioscience of therapeutic thermal modalities
    - Thermal physics
    - Bio physics
    - Basic principles of thermal agents
    - Classification of thermal agents
    - Parameters of thermal agents
  3. Physiology
    - Electrical properties of tissues
    - Skin
    - Tissue repair and healing
    - Sensory and motor nerves
    - Pain
    - Circulatory system and edema
  4. Physiological response to electrical stimuli
  5. Physiological response to thermal stimuli
  6. Clinical effects of electrical and thermal modalities
    - Soft tissue
    - Joints
    - Neuronal activity
    - Muscle performance
    - Visceral tissues
    - Abnormal tissues (Hematomas and malignant tumors)
  7. Current concepts in electrotherapy

## **Part II. Thermal Modalities**

### **Unit**

1. Shortwave diathermy
2. Microwave diathermy
3. Infrared radiation
4. Ultrasound
5. Cryotherapy

## **Part III. Photo Chemical Agents**

### **Unit**

1. Laser
2. Ultra violet radiation

## **Part IV. Electrical Stimulation Modalities**

### **Unit**

1. Faradic current
2. Galvanic current
3. Neuromuscular electrical stimulation
4. Transcutaneous electrical nerve stimulation
5. Interferential therapy
6. Functional electrical stimulation
7. High voltage pulsed galvanic stimulation
8. Didynamic currents
9. Russian currents
10. Micro current therapy
11. Low intensity alternating current
12. Rebox
13. Ionotopporosis

## **Part V. Mechanical Modalities**

### **Unit**

1. Traction
2. Compression
3. Hydrotherapy

## **Part VI. Recent Advances in Electrotherapy**

### **Unit**

1. Shock wave therapy
2. Combination therapy
3. Long wave diathermy
4. Magneto therapy

## **Part VII. Evidence Based Clinical Application of Electrotherapeutics**

### **Unit**

1. Pain
2. Muscle strengthening and prevention of atrophy
3. Muscle spasm
4. Central nervous system lesions
5. Peripheral nervous system lesions
6. Edema and peripheral vascular dysfunctions
7. Wound healing
8. Pelvic floor dysfunctions
9. Obesity

### **Recommended Books**

1. Integrating physical agents in rehabilitation by Bernadette Hecox and John Sanko, 2<sup>nd</sup> edition (Pearson prentice hall 2006)
2. Physicals agents in rehabilitation: from research to practical by Michell H.

Cameron, 2<sup>nd</sup> edition (Saunders and Elsevier, 2003)

3. Therapeutic Modalities for Allied Health Professionals by William E. Prentice and Frank Underwood (McGraw-Hill, 1998)

## **Module IV Electrophysiology**

### **Part I Foundational Concept**

#### **Unit**

1. Historical perspective
2. Terminology
  - Electro diagnosis
  - Electro neuromyography (ENMG)
3. Effectiveness of electrical stimuli

### **Part II Basic Physiology of Nerve and Muscles**

#### **Unit**

1. Membrane physiology
2. Muscle physiology
3. Nerve physiology
4. Physiological variables affecting electrophysiological tests

### **Part III Instrumentation**

#### **Unit**

1. Components of electro diagnostic apparatus
2. Technical variables

### **Part IV Principles of Electro Physiological Techniques**

#### **Unit**

1. Traditional methods
  - Faradic galvanic test
  - Strength duration test
  - Chronaxie test
  - Rheobase test
  - Reaction of regeneration test
  - Nerve excitability test
2. Recent Methods
  - Principles of NCS and EMG

### **Part V Evidence Based Application of Electrophysiological studies in Physiotherapy**

#### **Unit**

1. Kinesiological electromyography

2. EMG biofeedback
3. Application of traditional and contemporary techniques in Physiotherapy
4. Common parameters used in Physiotherapy research

**Recommended books**

1. **Electromyography in clinical practice** by Michael J. Aminoff, 3rd edition (Churchill Livingstone)
2. **Clinical neurophysiology** by UK Misra and Kalita, 2<sup>nd</sup> edition (Churchill Livingstone)
3. **Electro diagnosis in diseases of nerve and muscle: Principles and practice** by Jun Kimura (Oxford university press)
4. **The ABC of EMG: A practical introduction to Kinesiological electromyography** by Peter Conrad (Noroxon Inc. USA 2005)
5. **Integrating physical agents in rehabilitation** by Bernadette Hecox and John Sanko, 2<sup>nd</sup> edition (Pearson prentice hall 2006)

## **SECOND YEAR**

### **SPECIALTY PAPER I**

#### **PHYSIOTHERAPY ASSESSMENT**

This paper consists of 2 Modules:

- I. Anatomy and Physiology
- II. Physiotherapy Diagnosis

#### **Module I Anatomy and Physiology**

#### **Module II Physiotherapy Assessment**

(Note: Part I to IX is common for all the Specialty Subjects )

##### **I. Introduction to Physiotherapy Assessment**

Purpose and need for Physiotherapy assessment  
Historical perspective  
Physiotherapy verses medical model of practice  
Various categories for movement dysfunction  
Preferred practice patterns in Physiotherapy.  
Musculoskeletal  
Neuromuscular  
Cardiovascular/pulmonary  
Integumentary  
Today's health care model

##### **II. Influence of Psychological Factors on Réhabilitation**

Psychological adaptation  
Personality and coping styles  
Common defense reactions to disability  
Anxiety  
Acute stress disorder and post traumatic stress disorder  
Depression  
Substance abuse  
Agitation and violence  
Hypersexuality  
Psychosocial wellness  
Wellness in rehabilitation  
Integrating psychosocial factors into rehabilitation  
Suggestions for rehabilitative interventions

### **III. Influence of Values on Patient Care; Foundation for Physiotherapy assessment**

Process of assessment

Values and valuing

Code of ethics

The values of patient as a factor in care

The influence of the values on the primary goal of patient care

Value – Laden situation in rehabilitation

### **IV. Examination of Functional Status and Activity Level**

A conceptual framework

Examination of function

Response formats

Interpreting test results

Selected instruments assessing physical function

Multidimensional functional assessment instruments

### **V. Examination of Environment**

Purpose

Examination strategies

Patient – Home environment relationship: Overview of access, usability and safety

Adaptive equipment

Assistive technology

Examination of the workplace

Community access

Documentation

Funding for environmental modifications

Legislation

### **VI. Guideline for Physiotherapy Documentation**

Introduction

Documenting the examination

Documenting the evaluation

Documenting the plan of care

Application of documentation skills

### **VII. Disablement and Enablement Concepts for Physiotherapy Research and Practice**

- Traditional model

- Consequences of disease model

- NAGI model

- International Classification of Impairments Disability and Handicap Model (ICIDH – 1)



- National Center for Medical Rehabilitation Research Model 1 & 2 (NCMRR)
- Components of Health
- International Classification of Functioning, Disability and Health (ICF / ICDH - 2)

### **VIII. ICF Coding**

History and development of the ICF

The ICF and the WHO family of international classifications

Components of the ICF

ICF coding

Benefits of Using ICF

### **IX. Evidence Based Practice**

Principles of evidence-based Physiotherapy practice

Elements of evidence

Appraising the evidence

Evidence in practice

Note: Part X will differ for each individual Specialties

### **X. Assessment procedures related to the elective conditions**

#### **Recommended Books**

1. American physical therapy association: Guide to physical therapy practice, 2nd edition 2001.
2. Physical rehabilitation (4 & 5<sup>th</sup> edition) by Susan B O Sullivan and Thomas J Schmitz. (Jaypee publication)
3. International Classification of Functioning, disability and health: Short version. (IT'S Publication)
4. Professionalism in physical therapy: History, Practice and Development by Laura Lee Swisher and Catherine G. Page, (Elsevier publication 2005)
5. Effective Documentation for Physical Therapy Professionals, by Eric Shamus and Debra (McGraw Hill company 2004)
6. Physical therapy Documentation: From examination to outcome by Mia Erickson, Ralph Utzman (Slack incorporated 2008)
7. Writing SOAP Notes with Patient / Client management Formats by Ginge Kettenbach, Ph. D., PT, 3<sup>rd</sup> Edition, 2004, F.A. DAVIS COMPANY. Philadelphia
8. Practical Evidence-Based Physiotherapy Rob Herbert, Gro Jamtvedt, Judy Mead, Kare Birger Hagen Elsevier Butter worth Heinemann; Oxford UK (2005)
9. Guide to Evidence-Based Physical Therapy Practice by Dianne V. Jewell, PT, PhD, Virginia Commonwealth University, Virginia
10. Concern Specialty books for physical therapy assessment and outcome measures

## **Specialty I Physiotherapy in Orthopedics**

### **Module I Anatomy, Physiology and Clinical conditions**

#### **Part I – Fundamentals in Orthopedics**

##### **Unit**

1. Embryological development
2. Growth & maturation of musculoskeletal system
3. Anatomy and applied anatomy of musculoskeletal system
4. Physiology of musculoskeletal system
5. Applied biomechanics and pathomechanics of bones, joints & soft tissues

#### **Part II Clinical Orthopedics**

##### **Unit**

1. General musculoskeletal disorders
  - Congenital malformations & deformities
  - Developmental disorders of bone
  - Infections of bone & joints
  - Tumors of the musculoskeletal system
  - Neuro muscular disorders
  - Nerve injuries
  - Soft tissue injuries including burns
  - Spinal deformities
  - Metabolic and endocrine disorders
  - Degenerative joint disorders & arthritis
  - Regional conditions of upper, lower limb & spine
  - Amputation
2. Fractures and Dislocations
  - Introduction to fractures of bone & joints and classification of fractures
  - Introduction to dislocation & recurrent dislocations of Joints
  - Fractures & dislocations of upper limb
  - Fractures & dislocations of lower Limb
  - Fractures & dislocations of spine
  - Fractures of pelvis
3. General principles of Orthopaedic surgery
  - Arthrodesis
  - Osteotomy
  - Arthroplasty
  - Bone grafting
  - Internal and external fixations
  - Distraction and limb reconstruction
  - Correction of bone deformities and joint contractures.
  - Tendon transfers

- Nerve suturing and grafting.
- Wound debridement
- Orthopaedic implants

## **Module II Physiotherapy Assessment**

### **Part X Assessment**

#### **Unit**

1. General Orthopaedic Physiotherapy assessment procedures which includes, Demographic data collection, History, Observatory, Palpatory & examination findings which includes the assessment of pain, Motor examination, Joint laxity, Sensory examination, Posture and Gait evaluation and Other relevant system E.g. Cardio respiratory / Neurological examination methods along with disease specific / joint specific/ soft tissue specific tests assigned according to its sensitivity & specificity and obtaining a Physiotherapy assessment)

#### **Recommended Books**

1. Essentials of Orthopedics for Physiotherapists by John Ebenezer – Jaypee Publications
2. Practical Fracture Treatment by Ronald McRae, Max Esser – Churchill Livingstone
3. Oxford Textbook of Orthopaedic & Trauma by Christopher Bulstrode, Joseph Buckwalter – Oxford University Press
4. Campbell's operative orthopedics. - By S. Terry Can ale, James H. Beaty - Mosby
5. Fractures & joint injuries By Watson Jones – Churchill Livingstone
6. Clinical Orthopaedic Examination by Ronald McRae – Churchill Livingstone
7. Daniels and Worthingham's muscle testing: Techniques of manual examination By Helen J Hislop, Jacqueline Montgomery Barbara – Elsevier
8. Muscles – Testing and Function by Florence Peterson Kendall – Lippincott
9. Joint Range of Motion and Muscle length testing By Nancy Berryman Reese - Saunders
10. Orthopedic Physical Assessment, By David J. Magee, PhD, BPT - Saunders
11. Illustrated Orthopedic Physical Assessment, 3e B y Ronald C. Evans, - Mosby
12. Diagnostic Imaging for Physical Therapists by James Swain, Kenneth W. Bush, and Juliette Brosing – Elsevier
13. Differential Diagnosis for Physical Therapists: Screening for Referral, By Catherine C. Goodman, and Teresa Kelly Snyder – Saunders
14. Gait Analysis : Theory And Application By Rebecca Craik and Carol A Oatis – Mosby

## **Specialty II. Physiotherapy in Neurology**

### **Module I Anatomy, Physiology and Clinical conditions**

#### **Part I Overview of Growth and Development of Nervous System**

##### **Unit**

1. Normal development of nervous system
2. Aging of nervous system

#### **Part II Basic and Applied Neuro Anatomy**

##### **Unit**

1. Neuron
2. Neuroglia
3. Peripheral nerves
4. Spinal cord
5. Medulla
6. Pons
7. Midbrain
8. Cerebellum
9. Basal ganglia
10. Other Sub cortical structure
11. Cerebrum
12. Reticular and Limbic system
13. Autonomic nervous system
14. Ventricular system
15. Blood supply of the brain
16. Meninges
17. Special senses

#### **Part III Basic Physiology and Applied Neuro Pathophysiology**

##### **Unit**

1. Basic components of the motor system: Cells and tissues
  - Excitable cell: their morphology and physiology
  - Skeletal muscle: the somatic effectors
  - The neuromuscular junction: the nerve /muscle interface
  - Basic sensory mechanisms and the somatosensory system
2. Control of motor activity: Systems that regulate and coordinate movement
  - Motor control at the spinal cord level
  - Brainstem and motor control
  - Cortical motor systems
  - Cerebellar mechanisms
  - Basal ganglia and their connections
  - Limbic system
  - Special senses

## **Part IV Basic elements of Neuro Diagnostic Tests**

### **Unit**

1. CT Scan
2. MRI
3. Carotid angiography
4. Myelography
5. Nerve conduction velocity
6. Late responses
7. Electromyography
8. Evoked potential tests
9. Muscle and Nerve biopsy
10. CSF examination

## **Part V Common Clinical Manifestation of Neurological Disorders**

### **Unit**

1. Disorders of motor unit (Neuromuscular disease)
  - Muscle pain and tenderness
  - Muscle weakness
  - Changes in muscle mass
  - Muscle hyperactivity states
  - Muscle fatigability
  - Abnormal muscle tone (Hypotonic)
  - Abnormalities of sensation
  - Reduced or absent stretch reflexes
2. Disorders of central motor control
  - Abnormal muscle tone
  - Muscle weakness
  - Loss of muscular endurance
  - Altered muscle activation patterns
  - Involuntary movements
  - Associated reactions
  - Abnormalities of coordination
  - Apraxia
  - Hypokinesia
  - Abnormal skeletal muscle reflexes
  - Abnormal balance
  - Abnormalities of sensation
3. Other associated manifestations
  - Altered mental, cognitive and perceptual functions
  - Abnormalities in communications
  - Abnormalities in swallowing
  - Abnormalities of bladder and bowel functions

## **Part VI Clinical Conditions**

### **Unit**

1. Disorders of the motor unit (Neuromuscular diseases)
  - Disorders of muscle (Myopathies)
  - Myasthenia gravis and other disorders of neuromuscular transmission
  - Disorders of the peripheral nervous system
  - Disorders of the anterior horn cells (Neuronopathies)
  
2. Disorders of the central motor control
  - Disorders of the spinal cord
  - Parkinsonism and other movement disorders of the basal ganglia
  - Disorders of the cerebellum and its connection
  - Traumatic brain injury
  - Cerebrovascular disease (Stroke)
  - Multiple sclerosis and other central demyelinating diseases
  - Vestibular disorders
  - Cerebral palsy
  - Neural tube defects
  - Cranio - vertebral junction anomalies
  
3. Other conditions
  - Learning disorders
  - Visual dysfunction
  - Cognitive and perceptual dysfunction
  - Adverse effects of immobilization on the musculoskeletal system
  - Adverse effects of immobilization on visceral function
  - Miscellaneous conditions

## **Module II Physiotherapy Assessment**

### **Part X Physical Therapy Assessment Procedures Used in Neurological Conditions**

#### **Unit**

1. Patient interview
  - Present medical history
  - Past medical history
  - Social history
2. Assessment of level of consciousness
  - Orientation
  - Response to stimuli
  - Level of consciousness
3. Assessment of cognitive function
  - Memory
  - Attention
  - Emotional response

- Higher level cognitive abilities
- 4. Assessment of speech and communication
- 5. Assessment of cranial nerve integrity
- 6. Assessment of vital signs
- 7. Assessment of autonomic nervous system function
- 8. Assessment of sensory integrity
  - Superficial sensation
  - Proprioceptive (Deep) sensation
  - Combined cortical sensation
- 9. Assessment of perceptual function
  - Homonymous hemianopsia
  - Body scheme and body image disorders
  - Spatial relation syndrome
- 10. Assessment of motor function
  - Muscle bulk and firmness
  - Muscle tone
  - Muscle Strength
  - Voluntary movement control (Stages of recovery, Synergy pattern, Associated reaction)
  - Muscle endurance
  - Fatigue
  - Involuntary movements
- 11. Assessment of reflex integrity
  - Superficial reflexes
  - Deep tendon reflexes
  - Primitive or spinal reflexes
  - Tonic or brainstem reflexes
- 12. Assessment of coordination
  - Gross motor coordination
  - Fine motor coordination
- 13. Assessment of balance
  - Sensory integration or organization
  - Limits of stability (Steadiness and Maximum balance range)
  - Availability of postural synergies (Postural strategies)
  - Balance reactions
  - Static balance (Sitting and Standing)
  - Dynamic balance (Functional movement tasks, Dual tasks and BOS challenges)
- 14. Assessment of posture
  - Head, neck and trunk alignment
  - Attitude of extremities
  - Symmetrical and asymmetrical posture (weight bearing)
- 15. Gait analysis
  - Kinematic analysis
  - Kinetic analysis
- 16. Upper limb control
  - Reach

- Grasp
- Manipulation

#### 17. Functional movement analysis

(Based on NDTA, Stages of Motor control, MRP, Task oriented and Brunnstrom's concepts)

##### a) Movement analysis of individual components of body

- Trunk movements in sitting
- Upper extremity movements
- Upper extremity weight bearing movements
- Lower extremity movements in sitting
- Lower extremity movements in standing
- Trunk and extremity movements in supine

##### b) Movement analysis of functional mobility skills (tasks)

- Initial activities in supine or side lying position
- Rolling
- Sidelying
- Prone activities
- Prone extension (pivot prone)
- Prone on elbows
- Quadruped (prone kneeling)
- Lower trunk activities
- Hooklying (crook lying)
- Bridging
- Sitting activities
- Sitting
- Kneeling activities
- Kneeling (kneel standing)
- Movement transitions into half kneeling
- Half kneeling
- Modified plantigrade activities
- Modified plantigrade
- Standing activities
- Standing
- Movement transitions
- Supine to sit
- Sit supine
- Sit stand
- Stand to sit
- Gait activities

#### 18. Functional capacity evaluation (FCE) for patients with neurological impairments

#### 19. Work conditioning and work hardening programs for patients with neurological impairments

#### 20. Assessment of patients with assistive devices

- Ambulatory aids
- Orthotics
- Wheel chair



21. Assessment of adverse effect of immobilization

- Musculoskeletal
- Visceral function

**Recommended books**

Neuro anatomy

1. Text book of clinical neuroanatomy by Vishram singh (Elsevier 2007)
2. Clinical Neuroanatomy for Medical Students by Richard S Snell, 5<sup>th</sup> Edition (Lippincott Williams & Wilkins, 2001)

Neurophysiology

1. Neurophysiology by RHS Carpenter, 4<sup>th</sup> edition (Arnold 2003)

Clinical neurology

1. Pathophysiology of the motor systems: Principles and Clinical presentations by Christopher M. Fredericks and Lisa K. Saladin (F.A. Davis Company 1996)
2. Brain's diseases of the nervous system by John Walton, 12<sup>th</sup> edition (Oxford University press)
3. A physiological approach to clinical neurology by James W. Lance and James G. McLeod, 3<sup>rd</sup> edition (Butterworth's 1981)
4. Muscle and its diseases: An outline primer of basic science and clinical methods by Irwin M. Siegel (Year book medical publishers 1986)
5. Neuroscience fundamental for rehabilitation by Laurie Lundy Ekman (W.B Saunders 1998)
6. Illustrated neurology and neuro surgery by Kenneth Lindsay and Ian Bone (Churchill Livingstone, 2004)
7. Basic neurology by John Gilroy (Elsevier)

Neuro physiotherapy Assessment

1. Hand book of neurologic rating scales by Robert M. Herndon, 2nd edition , (Demos publications 2005)
2. Bickerstaff's neurological examination in clinical practice by John Spillane, 6th edition (Blackwell science limited 1996)
3. Physical rehabilitation laboratory manual: Focus on functional training by Susan B O Sullivan and Thomas J Schmitz. (F.A. Davis Company)
4. The development of the infant young child: Normal and Abnormal by R.S. Illingworth, 9th edition (Churchill Livingstone 1996)
5. Functional Movement Reeducation – A contemporary model for stroke rehabilitation by Susan Ryerson and Kathryn Levit (Churchill Livingstone and Elsevier, 1997)

## **Specialty III. Physiotherapy in Cardio Respiratory**

### **Module I Anatomy, Physiology and Clinical conditions**

#### **Part I Fundamentals in cardio-respiratory conditions**

##### **Unit**

1. Anatomy, physiology, biomechanics, pathomechanics & applied anatomy related to Cardiovascular & Pulmonary System
2. Development of the Cardio Vascular, Pulmonary systems and deviations from the normal development.
3. Age related changes in Cardiovascular & Pulmonary System
4. Physiology of microcirculation and edema
5. Body positioning and various systemic changes
6. Respiratory muscle physiology, fatigue and training
7. Normal and abnormal responses of Cardiovascular & Pulmonary System during exercise
8. Breathing mechanism in normal and diseased.

#### **Part II Clinical Conditions**

##### **Unit**

1. Respiratory Conditions
  - Obstructive lung diseases
  - Restrictive lung diseases
  - Suppurative lung diseases
  - Infective lung diseases
  - Occupational lung diseases
  - Chest trauma
  - Chest wall deformities
  - Lung cancers
  - Children with respiratory dysfunction
  - Diaphragmatic diseases
  - Sleep apnoea
  - Hyperventilation syndrome
2. Cardio Vascular Conditions
  - Congenital heart diseases
  - Acquired heart diseases
  - Myocardial infarction
  - Hypertension
  - Diseases of the myocardium
  - Pericardial diseases
  - Tumors of the heart
  - Vascular diseases
  - Peripheral vascular diseases

**Part X Assessment of cardiorespiratory conditions**

1. Skills of physiotherapeutic & functional Assessment of Cardiopulmonary system.
2. Basic principles and concepts of thoracic imaging, Electrocardiogram, Pulmonary function tests, Respiratory And Cardio -Vascular stress test & Ergometry; Cardiac Catheterization & Coronary angiography.

**Recommended Books**

1. Human Physiology by Guyton
2. Physiology of Human joints by Kapandji
3. Hand book of physiology in Aging - Masoro, C.R.C Press
4. Mechanical Ventilation by Irwin R.S.Bemers
5. Mechanical Ventilation by David W. Chang
6. ECG by Schamroth
7. Interpretation of Pulmonary Function Tests: A Practical Guide by Hyatt, Robert E.; Scanlon, Paul D
8. Principles of Exercise Testing and Interpretation: Including Pathophysiology and Clinical Applications by Kalman Wasserman
9. Baum's text book of pulmonary diseases
10. Crofton and Douglas's Respiratory diseases
11. Egan's Fundamentals of Respiratory care by Robert Wilkins
12. Harrison's Textbook of medicine
13. Brawnwald's Cardiology
14. API's Text book of Medicine

## **Specialty IV Physiotherapy in Pediatrics**

Module I Anatomy, Physiology and Clinical conditions

### **Part I Fundamentals in Pediatrics**

#### **Unit**

1. Nervous system
  - Overview of growth and development
  - Basic and applied neuroanatomy
  - Neurophysiology
2. Musculoskeletal System
  - Overview of growth and development
  - Musculoskeletal tissue systems - Connective tissue, muscles, bones and alignment of skeletal system.
3. Cardio Pulmonary system
  - Overview of growth and development
  - Respiratory muscle physiology in normal and diseased

### **Part II Clinical Conditions**

#### **Unit**

1. Neurological conditions
  - Cerebral palsy
  - Neural tube defects
  - High-risk infants
  - Brachial plexus injury
  - Brain injuries
  - Spinal cord injury
  - Developmental coordination disorders
  - Gullain barre syndrome
  - Spinal muscular atrophy
  - Infectious diseases of brain
2. Musculoskeletal conditions
  - Orthopedic conditions
  - Juvenile rheumatoid arthritis
  - Muscular dystrophy
  - Poliomyelitis
  - Congenital muscular torticollis
  - Arthrogryposis multiplex congenita
  - Osteogenesis imperfecta
  - Sports injuries in children
  - Limb deficiencies and amputations
3. Cardiopulmonary conditions
  - Conditions requiring mechanical ventilation
  - Pulmonary conditions - Asthma, Cystic Fibrosis, Infant Respiratory Distress Syndrome, Bronchopulmonary Dysplasia, Musculoskeletal System

- Impairments, Neuromuscular System Impairments
  - Cardiac conditions - Cardiovascular structural deficits
  - Cardiac and thoracic surgeries
4. Genetic syndromes
    - Genetics and development
    - Chromosomal Disorders
    - Single Gene Disorders
  5. Pediatric oncology
    - Etiology, types, signs & symptoms, physiotherapy management
  6. Burns
    - Classification and pathophysiology, Physiotherapy management

## **Module II Physiotherapy Assessment**

### **Part X Assessment guidelines**

#### **Unit**

1. Detail assessment procedures related to the elective conditions
  - Overview of pediatric neurological, musculoskeletal and cardiopulmonary Assessments
2. Principles of Laboratory investigations and other tests - Computerized Tomography Scan, Magnetic Resonance Imaging, Electromyography, Nerve Conduction Study, Evoked Potentials, Muscle Biopsy, Thoracic Imaging, Pulmonary Function Tests, and Exercise Testing.

## **Specialty V Sports Physiotherapy**

### **Module I Anatomy, Physiology and Clinical conditions**

#### **Part I Fundamental in Sports**

##### **Unit**

##### 1. Anatomy & Physiology

- Basic science and injury of muscle, tendon and ligament
- Embryological development, growth & maturation of musculoskeletal system.
- Applied anatomy & physiology of musculoskeletal system.
- Applied biomechanics and pathomechanics of bones, joints & soft tissues.
- Basic exercise physiology - Physiological responses and adaptations to

Exercise in central nervous, musculoskeletal, cardio respiratory, sensory, Autonomic nervous and endocrine systems

##### 2. Clinical Conditions related to sporting emergencies

Injuries of:

- Head, face and neck
- Shoulder
- Elbow, forearm, wrist and hand
- Trunk (Hip, Spine and Ribs)
- Internal (Abdominal/Thoracic)
- Knee and thigh
- Lower leg, ankle and foot
- Epiphysis
- Skeletally immature athletes, female athletes and differently baled
- Injuries Related to Specific Sports - E.g. Foot Ball, Volley Ball, Basket Ball, Swimming etc.

### **Module II Physiotherapy Assessment**

#### **Part X Assessment**

1. Basic skills of physical & functional and sports specific assessment of various sports injuries

2. Pre participation evaluation

3. Orientation to investigatory procedures in Orthopedics and Sports

- Basics of X-ray and views taken
- Basics of CT Scan
- Basics of MRI Scan
- Basics of biopsy procedures
- Basics of critical care Investigatory procedures
- Basics of electromyography & interpretation
- Basics of isokinetic testing

## **Specialty VI Physiotherapy in Obstetrics and Gynaecology**

### **Module I Anatomy, Physiology and Clinical conditions**

#### **Part I Overview of Female Anatomy**

##### **Unit**

1. Historical insights female nomenclature
2. General female anatomy
  - The female breast
  - The female abdomen
  - The female pelvis
  - The bony pelvis
  - Biomechanics of the female pelvis
  - The reproductive tract
  - The abdominal muscles
3. Obstetric Concerns
  - Pelvic axes, position, obstetric diameters and shape
  - Abnormal bony pelvis
  - Mechanical Impact of the fetus on anatomic relations
  - Influence of fetal weight on blood supply
  - Influence of fetal weight and postural changes
  - Hormonal impact of pregnancy on anatomic relations
4. Gynecologic concerns
  - Contents of the pelvic cavity
  - The urinary tract
  - The anorectal region
  - Neuroanatomy and neurophysiology of pelvic floor
  - Muscles of the pelvis and pelvic floor/ diaphragm
  - The perineum/external genitalia

#### **Part II The Adolescence Female**

##### **Unit**

1. Puberty and menarche.
2. Eating disorders
3. Urinary dysfunction in adolescence.
4. Diet for adolescence.

#### **Part III Physiology of Pregnancy**

##### **Unit**

1. The endocrine physiology related to reproductive medicine
2. Physiology of ovulation and menstruation
3. Pregnancy and fetal development
4. Physical and physiological changes during pregnancy
  - Endocrine system

- Reproductive system
- Cardiovascular system
- Respiratory system
- Breasts
- Skin
- Gastrointestinal system
- Nervous system
- Urinary system
- Musculoskeletal system

#### **Part IV Antenatal Period**

##### **Unit**

1. Pregnancy tests
2. Antenatal care
3. Antenatal education
4. Pre conceptual care
5. Diet and weight gain
6. Planning and leading labor and parent craft classes
7. Antenatal complications
8. High risk pregnancy
9. Urinary dysfunction during pregnancy
10. Adaptation of mother following musculoskeletal changes during pregnancy.

#### **Part V. The Physical and Physiological Changes during Labor and Puerperium**

##### **Unit**

1. Physical and physiological changes
2. Events of normal labor
3. Complications of labor
4. Post natal physical and mental condition
5. Psychological and emotional changes and coping with the demands of newborn

#### **Part VI Climacteric**

##### **Unit**

1. Physiological and endocrine changes of the menopause
2. Menopausal systemic changes and their management
3. Physical, psychological and emotional symptoms
4. Urinary dysfunction.

#### **Part VII Common Gynecological Conditions**

##### **Unit**

1. Gynecological health
2. Gynecological disorders and its management and PT treatment
  - Infective conditions
  - Cysts and new growths
  - Displacements and genital prolapse



- Disorders associated with menstruation
- Back ache and abdominal pain
- Polycystic ovarian syndrome
- Infertility
- Premature ovarian failure/Premature menopause
- Psychosexual problems
- Vulvodynia

### **Part VIII Urinary Function and Dysfunction**

#### **Unit**

1. Normal urinary tract function
2. Lower urinary tract dysfunction
3. Incontinence of urine – common types
4. Voiding difficulties
5. Principles of urodynamic, radiological and electromyographical investigations
6. Pregnancy, childbirth and urinary incontinence

### **Part IX Bowel and Anorectal Function and Dysfunction**

#### **Unit**

1. Normal bowel function
2. Bowel and anorectal dysfunction
3. Childbirth and anal incontinence

### **Part XI Oncologic Issues with Women's Health**

#### **Unit**

1. Breast cancer and lymphodema

## **Module II Physiotherapy Assessment**

### **Part X Assessment**

#### **Unit**

1. Antenatal period
  - Routine assessment
  - Evaluation of maternal musculoskeletal disorders
2. Assessment during labor
3. Postnatal period
  - Routine Assessment
  - Evaluation of postnatal problems
4. Pelvic floor assessment
  - Measurement of pelvic floor muscle function and strength and pelvic organ Prolapse

5. Assessment of pelvic pain
6. Bladder and bowel dysfunction
  - Assessment of urinary dysfunction
  - Assessment of urinary incontinence in neurologically impaired patients
  - Physiotherapy assessment for fecal incontinence and bowel dysfunction
7. Pre and post operative assessment for gynaecological surgery
8. Assessment of lymphodema and osteoporosis

## Specialty VII Physiotherapy in Hand Conditions

### Module I Anatomy, Physiology and Clinical conditions

#### Part I Fundamentals in Hand conditions

##### Unit

##### 1. Embryology of hand

- Development of hand
- Hand evolution

##### 2. Anatomy

###### Bones

- Carpal bones
- Metacarpals
- Phalanges

###### Joints

- Wrist joint
- Carpal joints
- Carp metacarpal joints
- Metacarpophalangeal joints
- Deep transverse metacarpal ligaments:
- Interphalangeal joints of hand

##### 3. Surface Anatomy

Normal appearance of the hand

Position of the flexor retinaculum and the recurrent branch of the median nerve

Motor functions of the median and ulnar nerves in the hand

Visualizing the positions of the superficial and deep palmar arches

Pulse points

##### 4. The Thumb

###### Opposition of the thumb

- The geometry of the thumb opposition
- The TM joint
- The MP joint of the thumb
- The IP joint of the thumb
- The motor muscles of the thumb
- The actions of the extrinsic muscles of the thumb
- Opposition of the thumb

##### 5. Muscles

- Dorsal interossei
- Palmar interossei
- Adductor pollicis
- Thenar muscles
- Hypothenar muscles

- Lumbrical muscles

#### 6. Soft tissues

- Carpal tunnel and structures at the wrist
- Palmar aponeurosis
- Palmaris brevis
- Anatomical snuffbox
- Fibrous digital sheaths
- Extensor hoods
- The ligamentous complex
- The tunnels and synovial sheaths of the flexor tendons
- The tendons of the long flexors of the fingers
- The tendons of the extensor muscles of the fingers

#### 7. Arteries and Veins

- Ulnar artery and superficial palmar arch
- Radial artery and deep palmar arch
- Veins

#### 8. Nerves

- Ulnar nerve
- Median nerve
- Superficial branch of the radial nerve

#### 9. The lymphatic system

#### 10. Applied anatomy

- Hand pathologies
- Tissue healing
- Abnormal positions of the hand and fingers
- Hand anomalies

#### 11. Physiology

Hand and wrist from spinal root level

Developmental physiology of the upper limb and hand

#### 12. Kinesiology of the wrist and hand

Biomechanics & Pathomechanics of the hand

Functions of the hand

The mode of prehension

Percussion contact gestures

The positions of function and of immobilization

Partially amputated hands and fictional hands

The motor and sensory function of the upper limb

Motor and sensory tests of the upper limb

Three motor tests of the prehensile ability of the hand

The prehensile ability of the hand

## **Part II Hand Conditions and Dysfunctions**

1. Arthritis
2. Orthopaedic conditions
3. Neurogenic conditions of hand
4. Infections and sequel of the hand
5. Hand burns and sequel
6. Extensor tendon derangements
  - \_ Swan neck deformity
  - \_ Boutonniere deformity
  - \_ Duputryens Contracture
7. Hand trauma
  - \_ Crush injuries,
  - \_ Zones of hand injuries
  - \_ Ligamentous injuries
  - \_ Volar plate injuries
  - \_ Tendon injuries
  - \_ Fractures & dislocations of hand & wrist
  - \_ Amputation
  - \_ Volkman's ischaemic contracture
8. Occupational hand disorders
  - \_ Computer operators
  - \_ Musicians
  - \_ Pneumatic tools operators
  - \_ Hand arm vibration syndromes
  - \_ Hand cuff and arrest injuries
  - \_ Defense injuries
  - \_ Mechanics
  - \_ Ergonomics advices
9. Other conditions
  - \_ Diabetic hand
  - \_ Various nail pathologies
  - \_ Various hand deformities
  - \_ Vascular conditions of the hand

## **Part III Special Surgical Procedures that require post operative physiotherapy**

- Tendon repair
  - \_ Tendon transfers
  - \_ Tenolysis
  - \_ Soft tissue repair / release
  - \_ Various grafting procedures- skin, nerve, tendon
  - \_ Amputation & re-implantation
  - \_ Arthroplasty .
  - \_ Modified modquad release
  - \_ Neurotization

- \_ Flaps
- \_ Plastic surgical techniques of the hand
- \_ Syndactyly release
- \_ Nerve transfer surgery
- \_ Revascularization procedures

**Part IV. Basic of Imaging in Hand and Wrist Disorders** like X ray, CT Scan, MRI etc.

**Reference books**

1. **Gray's Anatomy** Richard L. Drake Wayne Vogl Adam W.M Mitchell
2. **Rehabilitation of the hand and upper extremity** 5<sup>th</sup> edition Mackin
3. **The practice of the hand surgery** 2nd edition Wilamp Hooper
4. **Operative surgery of the hand** 4th edition rob & smith
5. **Environment & occupational medicine** William N 4<sup>th</sup> edition
6. **Emergency medicine** Judith E Tintinalli 6<sup>th</sup> edition
7. **Oxford textbook of public health** Roger Delels
8. **Forensic medicine clinical and pathological aspects** Jasm Payne
9. **Orthopedics examination evaluation and intervention** Mark Dutton
10. **Greens operative hand surgery** 5th Ed green hotchkin
11. **Lister's the hand** Paul Smith 4<sup>th</sup> edition
12. **Campbell's operative orthopedics** S. Terry Canale & Jsmrd
13. **Musculoskeletal disorders in the work place principles and practice** Nordin

## **Module II Physiotherapy Assessment**

### **Part X Assessment**

#### **Unit**

1. Hand evaluation
  - Subjective assessment
  - History
  - Objective assessment
  - Inspection
  - Palpatory findings
  - Physical examination
  - Pain assessment
  - Scar assessment
  - Range motion
  - Strength
  - Edema
- Functional Evaluation Tests
2. Hand evaluation aids
  - Hand dynamometer ,

- Goniometer ,
- Sensory evaluation kit ,
- Sensory-motor integration kit.
- Digital algometer

## **Specialty VIII Community Physiotherapy**

### **Module I Anatomy, Physiology and Clinical conditions**

#### **Part I Fundamental Concepts**

##### **Unit**

##### 1. Introduction

- Definition of community
- Current status
- Trends and challenges of community Health
- Psycho-social and socio – economical aspects of community

##### 2. Culture

- Primary and secondary characteristics of culture
- Cultural conception of the self
- Breast feeding care in multicultural population
- Food customs and their role in pregnancy and infant feeding

##### 3. Bio-cultural ecology

- Skin color and biological variations
- Endemic, heredity and genetic diseases

##### 4. Epidemiology

- Basic principles
- Distribution of disease
- Determinants of diseases

##### 5. Family

- Origins
- Residence
- Economics
- Education and employment
- Dominant language and communication practices
- Decision making and gender roles in family
- Roles of aged and extended family
- Alternative life style

##### 6. High risk behaviours

- Obesity and functional impairment
- Exercise and nutritional supplementation
- Death rituals
- Spirituality
- Poverty and homelessness

##### 7. Health and Illness: Levels of healthcare & fitness

##### 8. Applied anatomy, physiology and biomechanics related to:

- Women's health
- Mother & child
- Sports
- Industrial health.

##### 9. Social Aspects

- Nutrition and diet



- Physically challenged patient
- Living with chronic illness
- Child care prevention and social medicine
- Immunization programs – malnutrition and early detection of disabling conditions
- Educated child birth, post natal complications and prevention of postural defects, fitness programs
- Drug dependence and iatrogenic disorders

### **Part II Occupational & Industrial health**

- Introduction: Trends, issues, definition, aims, objectives, workplace safety
- Occupational environment- Physical, social, decision making, critical thinking
- Occupational hazards for different categories of people physical, chemical, biological, mechanical, accidents.
- Occupational diseases and disorders

### **Part III National and International Health Agencies**

#### **Part IV Health Disorders**

- Preventive aspects of health disorders
- Developmental disorders, pediatric disorders
- Sports, Industrial and occupational disorders
- Geriatric diseases
- Gynecological health, women’s reproductive health and health care
- Tuberculosis
- Sexually transmitted diseases, acquired immune deficiency syndrome
- Poliomyelitis, malaria, leprosy, typhoid, cancer
- Hypertension, cardiac disorders
- Occupational lung disorders
- Communicable and non communicable disorders

## **Module II Physiotherapy Assessment**

### **Part X Detail assessment Procedures Related to the Community Physiotherapy**

#### **Unit**

1. Disability detection
2. Assessment of musculoskeletal pain
3. Assessment of dysfunction related to community health
4. Disaster evaluation
5. Evaluation and assessment of elderly problems
6. Ergonomic evaluation
7. Kleinman’s explanatory model for disability
8. Early detection and intervention

9. Information gathering, surveys, record keeping, report writing, community resources, devising individual programs, plans and evaluating process, monitoring needs, reviews, discharge, communication and participative evaluation
10. Screening and identification of early mental retardation
11. Gross motor and fine motor assessment
12. Screening and assessment check list

## **Specialty IX Geriatric Physiotherapy**

### **Module I Anatomy, Physiology and Clinical conditions**

#### **Part I Introduction to Geriatrics**

##### **Unit**

1. Concepts about aging
  - Myths and stereotypes about aging
2. Biology of aging
  - Longevity, cellular and molecular aging
3. Theories of aging
  - Biological, psychological and sociological theories
4. Cultural aspects of aging
5. Physiological changes in various systems
  - Aging musculoskeletal system
  - Aging and the nervous system
  - Aging cardiac vascular system
  - Aging respiratory system
  - Effects of aging on vascular function.
  - Aging digestive system.
  - Aging immune system.
  - Thermoregulation considerations for aging patients.

#### **Part II Clinical Conditions in Geriatrics**

##### **Unit**

- Endocrine and metabolic disorders
- Sexual dysfunction in elderly
- Neoplasm in elderly
- Dermatologic diseases and disorders
- Infectious diseases in elderly
- Functional vision changes in aging.
- Functional hearing changes in aging.
- Nutritional deficiency disorders
- Sleep problems in elderly.
- Psychiatric problems in geriatrics musculoskeletal conditions
- Neurological conditions
- Cardio respiratory conditions
- Gastrointestinal disorders
- Urologic disorders in elderly

## **Module II Physiotherapy Assessment**

### **Part X Detail Assessment Procedures Related to the Geriatric Conditions**

#### **Unit**

1. Principles and concepts of assessment
  - A conceptual framework for examination, evaluation and diagnosis of Elderly
  - Functional assessment of the elderly
  - Environmental design: accommodating sensory changes in the elderly
  - Cognitive impairment
  - Depression and function in the elderly
2. Examination procedures
  - Vascular examination
  - Musculoskeletal examination
  - Neurological examination
  - Physical assessment
  - Cognitive assessment
  - Psychosocial assessment
  - Activities of daily living
3. Geriatric screening
4. Assessment of falls

## **SPECIALTY PAPER II**

### **PHYSIOTHERAPY INTERVENTIONS**

#### **Specialty I Physiotherapy in Orthopedics**

##### **Part I Fundamental concepts**

###### **Unit**

- Basic Skills in Orthopaedic Physiotherapy evaluative procedures
- Physical assessment including relevant investigations of musculoskeletal System and appropriate outcome measures.
- Evidence based practice

##### **Part II Physiotherapy Management Procedures**

###### **Unit**

###### **1. General musculoskeletal disorders**

- Congenital malformations & deformities
- Developmental disorders of bone
- Infections of bone & joints
- Tumors of the musculoskeletal system
- Neuro muscular disorders
- Nerve injuries
- Soft tissue injuries including burns
- Spinal deformities
- Metabolic and endocrine disorders
- Degenerative joint disorders & arthritis
- Regional conditions of upper, lower limb & spine
- Amputation

###### **2. Fractures & Dislocations**

- Fractures & dislocations of upper limb
- Fractures & dislocations of lower Limb
- Fractures & dislocations of spine
- Fractures of pelvis

###### **3. Importance of orthosis, prosthesis & mobility aids in musculoskeletal problems**

- Orthoses & mobility aids – materials, designs and biomechanical compatibility.
- Applied mechanics in the application of prostheses
- Procedures in prosthetic & orthotic fabrication of temporary splints for face, upper & lower Limb for support, prevention of deformities & Functional training.

###### **4. Special orthopedic physiotherapeutic approaches**

- Physiological and accessory movements, biophysics of contractile and non contractile tissues, response to mechanical loading. .
- History of manual therapy. overview of various manual therapy approaches for all the skeletal joints.
- Principles and application of different soft tissue mobilizations like Myofascial Techniques, Neural Tissue Mobilization, Muscle Energy Technique etc.
- Therapeutic exercise as an adjunct to manual therapy.
- Pilates-school of thought, Chiropractic school of thought, Osteopathic school of thought
- Joint manipulation – peripheral joints and vertebral joints.
- Neuromuscular Taping techniques
- Advances in the field of manual medicine
- Swiss ball therapy
- PNF Techniques

#### 5. Special topics

- Classification of sports specific injuries and its management
- Community based rehabilitation for musculoskeletal disorders
- Ergonomics in musculoskeletal dysfunctions with special emphasis to industrial safety.
- Understanding of disability & its compensation strategies
- Emergency care & musculoskeletal therapeutics
- Role of Physiotherapist as a member in disaster management team.
- Recent advances in pain evaluation & physiotherapy management.
- Team Approach of Physiotherapy management In poly trauma
- Home program & counseling of care givers

#### Recommended Books

1. **Skeletal Growth and development: Clinical issues and basic science advances. The Symposium Series** by Joseph A Buckwalter – AAOS
2. **Introduction to Physical Therapy**, By Michael A. Pagliarulo - Mosby
3. **Kinesiology: The mechanics and Pathomechanics of Human Movement** by Carol A Oatis - Lippincott
4. **Cash Text Book for Orthopedics and rheumatology for physiotherapist** by John Elizabeth Cash & Patricia A Downie – Lippincott
5. **Joint Mobilization / Manipulation: Extremity and Spinal Techniques** by Susan L Edmond – Mosby
6. **Foundations of Chiropractic** by Meridel I Gatterman – Mosby
7. **Grieve's Modern Manual Therapy: The Vertebral Column**, By Jeffrey Boyling and Gwendolen Jull – Churchill Livingston
8. **Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation**, By Donald A. Neumann, PhD, PT – Mosby
9. **Maitland's Peripheral Manipulation**, By Elly Hengeveld, and Kevin Banks, - Butterworth-Heinemann
10. **Maitland's Vertebral Manipulation**, By Geoff D. Maitland, - Butterworth-

Heinemann

11. **Hand and Upper Extremity Rehabilitation: A Practical Guide**, By Susan L. Burke,  
- Churchill Livingstone
12. **Manual Therapy for the Peripheral Nerves** By Jean-Pierre Barral, DO(UK) and Alain Croibier, Osteopathe DO, MRO (F) – Churchill Livingstone
13. Neuromuscular Rehabilitation in manual and physical therapies: Principles and Practice by Eyal Lederman – Churchill Livingstone
14. Orthopaedic Physical therapy Secrets by Jeffrey D Place - Elsevier
15. Principles and Practice of orthopedics and sports medicine by Garret
16. A Physiotherapist's Guide to Clinical Measurement by John Edward Fox, and Richard Jasper Day – Elsevier
17. Orthotics and Prosthetics in Rehabilitation, By Michelle M. Lusardi, PhD, PT and Caroline C. Nielsen, PhD - Butterworth-Heinemann
18. Clinical Application of Neuromuscular Techniques: The Upper Body by Leon Chaitow, and Judith DeLany, - Elsevier
19. Handbook of Postsurgical Rehabilitation Guidelines for the Orthopedic Clinician By Hospital for Special Surgery – Mosby
20. An Illustrated Guide to Taping Techniques – Principles & Practice By Thomas John Hewetson – Mosby
21. Paraplegia & Tetraplegia A Guide for Physiotherapists by Ida Bromley – Churchill Livingstone
22. Therapeutic exercises using swiss ball By Caroline Corning Creager – Executive Physical therapy
23. Manual Mobilization of the Joints – The Kaltenborn Method Volume I, II By Freddy kaltenborn
24. Treat your own Back by Robin McKenzie
25. Treat your own Neck by Robin McKenzie
26. Cervical and Thoracic spine : Mechanical Diagnosis & Therapy Vol I & II By Robin McKenzie
27. The Lumbar Spine: Mechanical Diagnosis & Therapy Vol I & II By Robin McKenzie
28. The Human Extremities: Mechanical Diagnosis & Therapy by Robin McKenzie
29. Manual Therapy by Brian R Mulligan
30. Documentation for Rehabilitation: A Guide to Clinical Decision Making, By Lori Quinn, and James Gordon - Saunders
31. Clinical Orthopaedic Rehabilitation by S Brent Brotzman
32. Treatment and rehabilitation fractures by Vasantha L Moorthy & Stanley Hoppenfield - Lippincott
33. Physiotherapy for Amputees: The Roehampton Approach by Barbara Engstrom – Churchill Livingstone
34. Textbook of orthopedic medicine Vol I & II by James Cyriax - Bailliere

## **Specialty II Physiotherapy in Neurology**

### **Part I. Foundational Concepts in Neurological Physiotherapy**

#### **Unit**

1. History of neurological physiotherapy
2. Motor development concepts
3. Motor control and its clinical applications
4. Motor learning and its clinical applications
5. Recovery of function and neural plasticity
6. Conceptual framework for clinical practice
7. Constraints of motor control (Neurological impairments)
8. Interventions for neurological impairments
9. Psychological aspects of adaptation and adjustment during various phases of neurological disabilities
10. Principles of electro diagnosis (NCV, EMG, RNS and EP)

### **Part II. Special Neuro Physiotherapeutic Approaches**

#### **Unit**

1. Traditional approaches
  - Compensatory training approach
  - Muscle reeducation approach
  - Neuro physiological approaches
 (Bobath, Brunnstrom, Roods, PNF, Sensory integration therapy and others)
2. Contemporary approaches
  - Motor relearning programme
  - Task oriented approach (Shumway cook)
  - Novel approaches
  - Constrained movement therapy
  - Body weight supported treadmill training
  - Functional electrical stimulation
  - Neuro muscular electrical stimulation (NMES)
  - Mirror box therapy
  - Mental imagery technique
  - Virtual reality therapy
  - Robotic movement therapy (MAT)
  - Bimanual approach
  - Biofeedback
  - Neuro dynamics in neurological conditions
3. Eclectic approach

### **Part III. Physiotherapy Intervention for Neurological Conditions**

#### **Unit**

1. Disorders of the motor unit (Neuromuscular diseases)
  - Disorders of muscle (Myopathies)
  - Myasthenia gravis and other disorders of neuromuscular transmission



- Disorders of the peripheral nervous system
  - Disorders of the anterior horn cells (Neuronopathies)
2. Disorders of the central motor control
    - Disorders of the spinal cord
    - Parkinsonism and movement disorders of the basal ganglia
    - Disorders of the cerebellum and its connection
    - Traumatic brain injury
    - Cerebrovascular disease (Stroke)
    - Multiple sclerosis and other central other central demyelinating diseases
    - Vestibular disorders
    - Cerebral palsy
    - Neural tube defects
    - Cranio - vertebral junction anomalies
  3. Other conditions
    - Learning disorders
    - Visual dysfunction
    - Cognitive and perceptual dysfunction
    - Adverse effects of immobilization on the musculoskeletal system
    - Adverse effects of immobilization on visceral function
    - Miscellaneous conditions

#### **Part IV. Special Topics**

##### **Unit**

1. Vestibular rehabilitation
2. Pain management
3. Retraining of bladder and bowel dysfunctions
4. Management for oromotor dysfunctions
5. Visual deficits and its management
6. Myofascial release technique
7. Swiss ball therapy
8. Orthotics for neurological conditions
9. Alternative and complementary therapies

##### **Recommended Books**

General Neuro physiotherapy

1. Neurological rehabilitation by Darcy A.Umphred, 5th Edition, 2007 (Mosby Elsevier Publication.)
2. Physical management in neurological rehabilitation by Maria Stokes (Elsevier Mosby publication 2004)
3. Physiotherapy in neuro conditions by Gladys Samuel Raj (Jaypee brothers 2006)
4. Spinal cord injury functional rehabilitation by Martha Freeman Somers, 2<sup>nd</sup> edition (Prentice Hall publication)
5. Physiotherapy in disorders of the brain : A clinical guide by Janet H.Carr and

Roberta B. Shepherd (William Heinemann medical books limited)

6. Cash textbook of Neurology for physiotherapists by Patricia Downie, 4<sup>th</sup> edition (Jaypee Wolf 1992)

7. Neurologic interventions for physical therapy by Suzanne Tink Martin and Mary Kessler, 2<sup>nd</sup> edition (Saunders Elsevier)

8. Functional neurorehabilitation through the life span by Dolores B. Bertoti (F.A. Davis Company 2004)

Neuro physiotherapeutic approaches

1. Brunnstrom's movement therapy in hemiplegia: A neurophysiological approach by Kathryn A. Sawner and Jeanne M. La Vigne, 2nd edition (Lippincott Company 1992)

2. Motor control: Translating research into clinical practice by Anne Shumway - Cook And Marjorie Woollacott, 3 edition (Lippincott Williams and Wilkins)

3. Neuro developmental treatment approach : theoretical foundations and principles of clinical practice by Janet M. Howle (NDTA2002)

4. PNF in practice: Susan Adler

5. Vestibular rehabilitation by Susan J.Herdman, 2<sup>nd</sup> edition (F.A. Davis Company 2000)

6. Mobilization of the nervous system by David S.Butler (Churchill Livingstone 1996)

7. Myofascial release and NDT

8. Stroke Rehabilitation: Guidelines for exercise and training to optimize motor skill By Janet Carr and R. Shepherd (Elsevier, 2003)

9. Neurological Rehabilitation, Optimizing motor performance by Janet Carr and R. Shepherd (Butterworth and Heinemann Ltd, 2004)

10. Functional Movement Reeducation – A contemporary model for stroke Rehabilitation by Susan Ryerson and Kathryn Levitt (Churchill Livingstone and Elsevier, 1997)

11. A Motor Relearning Programme for Stroke by Janet Carr and R. Shepherd (Butterworth and Heinemann Ltd, Oxford Publication)

## **Specialty III Physiotherapy in Cardio Respiratory Conditions**

### **Part I Basic Foundations**

#### **Unit**

1. History of Cardio pulmonary Physiotherapy
2. Concepts in Cardio-respiratory Physiotherapy
3. Concepts in Cardio-pulmonary Rehabilitation.

### **Part II Special Techniques**

#### **Unit**

- Body positioning techniques
- Relaxation techniques
- Breathing exercises
- Breathing re-education techniques
- Advanced airway clearance techniques
- Facilitating ventilatory patterns and breathing strategies
- Evidence based practice in Cardiac Rehabilitation
- Evidence based practice in Pulmonary Rehabilitation
- Ventilator – dependent patient
- Adjuncts to Chest Physiotherapy
  - Humidification
  - Nebulization
  - Aerosol delivery
  - Mechanical ventilation (Invasive, Non Invasive)
  - Airways
  - Tracheostomy care
  - Suction
  - Manual hyper inflation
  - Lung expansion therapies

### **Part III Management for Clinical Conditions**

#### **Unit**

1. Cardio vascular system
  - Cardiac conditions
  - Peripheral vascular diseases
2. Respiratory system
 

Obstructive, Restrictive, Suppurative, Infective, Occupational lung diseases, Chest trauma, Chest wall deformities, Lung cancers, Children and Neonates

  1. Physiotherapy Management after Surgery
  2. Life-style modifications
  3. Cardio-pulmonary fitness training and disability evaluation

#### **Recommended Books**

1. Cardio pulmonary physical therapy by Scott Irwin

2. Cardio pulmonary physical therapy by Donna frownfelter
3. Principles of cardio pulmonary physical therapy by Asbury & Petty
4. Cardio pulmonary physical therapy by HelenHillegas, (Saunders)
5. PT for RT & cardiac problems by Weber
6. Cardio pulmonary physical therapy by Joanne Watchie
7. Physiotherapy for respiratory and cardiac problems by Pryor JA; Prasad SA, Elsevier
8. Respiratory ca re – A guide to clinical practice by Burton G.G. & Hodgkin
9. Brompton's Chest Physiotherapy
10. Physiotherapy in respiratory care by Hough a Jaypee Publishers
11. Chest physiotherapy in intensive care unit by Mackenzie CF Williams and Wilkins
12. Cardiovascular and Pulmonary physical therapy by Felter D.F. Mosby
13. Exercise and the heart by Froelicher V.F. Elsevier
14. Cardiovascular health and disease in women by Douglas PS. Saunders
15. Acute care handbook for physical therapist b y Jamie C.Paz Michel P. West. Butterworth Heine Mann
16. Physical therapy for children by Campbell Suzann K, W.B Saunders, Philadelphia
17. Chest physiotherapy in Intensive care unit by Mackenzie, Williams & Wilkins, Baltimore
18. Cardiopulmonary symptoms in physiotherapy by Cohen M, Churchill, Livingstone, London
19. Physical rehabilitation: assessment and treatment by O'Sullivan, F.A Davis, Philadelphia
20. Clinical application of ventilatory support by Kinky Churchill, Livingstone, New York
21. Pulmonary rehabilitation: guidelines to success by Bodkins, Butterworth, Boston
22. Cardiac rehabilitation by Amundsen lord, Churchill, Livingstone, London
23. Physical therapy of the cancer patient by McGaryex Charles, Churchill, Livingstone, New York
24. Multidisciplinary approach to breathing disorder by Leon
25. Clinical Exercise testing by Jones
26. Pulmonary rehabilitation. The Obstructive and Paralytic Conditions by John
27. Coronary artery disease essentials of prevention and Rehabilitation Program by Peter
28. Pulmonary Rehabilitation by John Hodgkin (Elsevier)

## **Specialty IV Physiotherapy in Pediatrics**

### **Part I Fundamental Concepts**

#### **Unit**

1. Motor control
  - Theories, variables, motor skill acquisition in children
2. Motor Learning
  - Theories, motor learning constructs, motor learning and teaching strategies
3. The child's development of functional movement
  - Motor development theories
  - Developmental processes and principles
  - Stages of motor development
4. Reflexes and Reactions
  - Survival and vestigial reflexes
  - Attitudinal postural reflexes
  - Righting reactions
  - Balance reactions
5. Ethical and Legal Framework of pediatric Physical therapy practice
6. Models of team interaction and service delivery in pediatric Physical Therapy practice

### **Part II Advanced Approaches used in Pediatric Physical Therapy**

#### **Unit**

1. Special approaches
  - Neurodevelopment therapy
  - Sensorimotor approach
  - Sensory integration therapy
  - Proprioceptive neuromuscular facilitation
  - Electromyography biofeedback
  - Constraint-induced movement therapy
  - Myofascial release
  - Mobilization and manipulations
  - Muscle energy technique
  - Advanced airway clearance techniques
2. **Early intervention services**
  - Effectiveness and implications for pediatric Physical Therapy practice
  - Family centered Care
  - Role of Physical therapist
  - Elements of early intervention

### **Part II Physical Therapy management**

1. Management of Pediatric Neurological, Musculoskeletal and Cardiopulmonary conditions using advanced Physical Therapy interventions
2. Role of Physical therapist in Neonatal and Pediatric Intensive care units
3. Cardiopulmonary resuscitation in children
4. Sports injuries in children

Components of physical performance and sports performance

Physiotherapy management for sports injuries

5. Genetic syndromes

Physical therapy management for various genetic syndromes resulting in neurological, Musculoskeletal and cardiopulmonary impairments.

6. Pediatric oncology

Physical therapy interventions for different types of cancers, bone marrow

Transplantation and terminal disease

7. Burns

Physical therapy management in emergent, acute, skin graft, rehabilitation and

Reconstructive phases

Splinting, pressure garments and inserts

8. Assistive technology

- Role of assistive devices
- Determining a child's equipment needs and equipment selection
- Commonly used equipments

### **Recommended Books**

1. **Pediatric Physical Therapy** , Jan Stephen Tecklin, 3<sup>rd</sup> (1999) and 4<sup>th</sup> (2008) editions, Lippincott Williams & Wilkins.
2. **Physical Therapy for Children** , Suzann K.Campbell, 3<sup>rd</sup> edition, 2006, Saunders Elsevier.
3. **Physiotherapy for Children**, Teresa Pountney, 2007, Butterworth Heinemann Elsevier.
4. **Meeting the Physical Therapy Needs of Children** , Susan K.Effgen, 2005, F.A.Davis Company, Philadelphia.
5. **Physiotherapy in Pediatrics**, Roberta B. Shepherd, 3rd edition, 1995, Butterworth Heinemann.
6. **Neurologic Intervention for Physical Therapist Assistant**, Martin Kessler, 1<sup>st</sup> & 2<sup>nd</sup> Edition, 2008, W.B.Saunders Company Ltd.
7. **Physiotherapy and the growing child** , Yvonne R Borns & Julie MacDonald, 1996, W.B.Saunders Company Ltd.
8. **Pediatric Rehabilitation**, Gabriella E. Molnar, 3rd edition, 1999. Hanly & Belfus, Philadelphia.
9. **Treatment of Cerebral Palsy & Motor Delay** , Sophie Levett, 4<sup>th</sup> edition, 2004. Blackwell Publishing.
10. **Pediatric Therapy, A Systems Approach** , Susan Miller Porr, 1999, F.A.Davis Company.
11. **Reflex and Vestibular Aspects of Motor Control, Motor Development and Motor Learning** , R.Barnes, Carolyn A Crutch field, 1990, Stokesville Publishing Company.
12. **Neurological Rehabilitation**, Darcy A. Umphred, 4th & 5th edition, 2007, 2001, MOSBY Elsevier.
13. **Physical Rehabilitation**, Susan B.O Sullivan, 4<sup>th</sup> & 5<sup>th</sup> editions, 2007, Jaypee Brothers.
14. **Cash's Textbook of Neurology for Physiotherapists**, Patricia A. Downie, 4th edition, 1992, Jaypee Brothers.

15. **Cardiovascular & Pulmonary Physical Therapy evidence & practice** , Elizabeth Dean & Donna Frownfelter, 3<sup>th</sup> (1996) & 4<sup>th</sup> (2006) editions, MOSBY Elsevier.
16. **Pediatric Physical Examination**, Karen G. Dunder Stadt, 2006, MOSBY Elsevier.
17. **Clinics in Physical Therapy Assessment in Early Infancy**, Edited by Irmaj. Wilhelm, 1993, Churchill Livingstone.
18. **Motor Assessment of the Developing Infant** , Martha Copier, 1994, Saunders.

## **Specialty V Sports Physiotherapy**

### **Part I Advanced Physiotherapy Intervention Techniques used in the Management of Sports Specific Injuries.**

Mobilization and manipulation (peripheral and spinal)  
 Deep dynamic myofascial techniques  
 Trigger point release  
 Soft tissue & sports massage  
 Neural tissue mobilization  
 Muscle energy technique  
 Sports taping and wrapping  
 Proprioceptive neuromuscular techniques (PNF)  
 Core Exercises - pilates, swiss ball exercises, stabilization exercises  
 Therapeutic exercise prescription

### **Therapeutic modalities and procedures in sports**

Proprioception training  
 Plyometric training  
 Eccentric muscle training  
 Muscle training and conditioning programme  
 Stretching  
 Athletic emergency care and first-aid  
 Principles of injury prevention  
 Protective and supportive equipments  
 Individualized treatment programmes, protocols, preventive exercises, conditioning exercises, taping and wrapping techniques used for sports specific injuries

### **Part II Special Topics**

- Nutrition, pharmacology and psychology in sports
- Sports specific fitness training
- Ergonomics for sports
- Fitness testing and evaluation
- Fitness programming for healthy adults and special population

### **Recommended Books**

- 1) Orthopedic Sports Medicine, Delee Drez Miller, 3<sup>rd</sup> edition: 2009, Saunders Elsevier
- 2) Sports Physiotherapy, Maria Zuluaga, Christopher Briggs, John Carlisle.
- 3) Sports Injury Assessment and Management, David C Reid.
- 4) Orthopedic and sports physical therapy, Terry R. Macone: 3<sup>rd</sup> edition, 1997: Mosby.
- 5) Post surgical orthopedic sports rehabilitation knee and shoulder , Robert C. Maske: 2006: Mosby Elsevier.
- 6) Sports injuries diagnosis and management , Christopher N. Norris: 2<sup>nd</sup> & 3<sup>rd</sup> edition: 1998: BH.
- 7) Sports medicine secrets, Hanley and beltors, 2<sup>nd</sup> edition: 2001: jaypee.



- 8) Sports injuries prevention and their treatment, Lass Peterson: 1st edition: 2001: Martin dunitz.
- 9) Sports medicine problem and practical management, Eugene sherry, 1<sup>st</sup> edition:1997: GMM.
- 10) Exercise and sports science, Garrett, Kirkendall: 2000: Lippincott Williams And Wilkins.
- 11) ACSM'S essentials of sports medicine, Robert E. salhi, fredy massimino: 1997: Mosby.
- 12) Sports medicine in primary care , Rob jonson M.D: 2000: saunders company.

## **Specialty VI Physiotherapy in Obstetrics and Gynaecology**

### **Part I Foundations of Physiotherapy in Women's Health**

#### **Unit**

1. Historical perspective of women's health care
2. Patient education in women's health
3. Psychological issues associated with women's health

### **Part II the Adolescence Female**

#### **Unit**

1. Adolescence and musculoskeletal system
2. Exercise for adolescence.

### **Part III Physiotherapy in Childbearing Year**

#### **Unit**

1. Importance of prenatal exercise and benefits of exercise in pregnancy.
2. Exercise class structure.
3. Indications, contraindications and precautions.
4. Various exercises during pregnancy – flexibility, strengthening and Conditioning Exercises.
5. Pregnancy discomforts and its physiotherapy management
6. Relaxation technique in prenatal education
7. Physiologic basis for relaxation training
8. Various relaxation techniques
9. Psycho analgesic methods of pain control
10. Ergonomics
11. Physiotherapy management of musculoskeletal dysfunction during pregnancy
12. Physiotherapy management of high risk pregnancy

### **Part IV Management of Labor, Physiotherapy Interventions during Labor and**

#### **Postpartum Care**

#### **Unit**

1. Pain during labor and various coping techniques
  - Relaxation
  - Positioning
  - Breathing during various stages of labor
  - Electrical modalities for pain reduction
  - Massage
  - Other techniques
2. Immediate post natal complications and its management
3. Late post natal complications and its management
4. Ergonomics

## **Part V Musculoskeletal Lifespan Issues in Women's Health**

### **Unit**

1. Musculoskeletal disorders during the middle years and beyond
2. Women and heart disease
3. Post menopausal problems and its management
4. Osteoporosis: Physiotherapy, prevention and intervention

## **Part VI Physiotherapy Management for Gynecological Disorders**

### **Unit**

1. Physiotherapy care of patients undergoing gynecological surgery
  - Psychological aspects of gynecological surgery
  - Preoperative physiotherapy, assessment and treatment
  - Post operative physiotherapy, assessment and treatment
  - Post operative complications and its management
  - Discharge advice
2. Treatment and management of urinary incontinence
  - Ethical principles in pelvic floor physiotherapy
  - Historic perspective of pelvic floor muscle training
  - Evidence based physiotherapy for UI in during pregnancy and childbirth
  - Pelvic floor muscle exercise in the treatment of UI / Pelvic floor and Exercise science
  - Advanced manual therapy for the pelvic floor
  - Pelvic floor stability and trunk muscle co-activation
  - Biofeedback
  - Ultrasound
  - The use of exercise balls
  - Therapeutic electrical stimulation
  - Bladder training and behavioral training
  - Pelvic floor dysfunction and evidence based physiotherapy
  - Physiotherapy management for fetal incontinence and bowel dysfunction
  - Evidence based physiotherapy for neurological diseases
  - Evidence based physiotherapy for the elderly
  - Evidence based physiotherapy in men

## **Part V Oncologic Issues with Women's Health**

### **Unit**

1. Physiotherapy Management of breast cancer sequel
2. Lymphoedema management

## **Part VI Special Topics within Women's Health**

### **Unit**

1. The female athlete  
The athletic women / women and exercise

Pelvic floor physiotherapy for elite athletes

2. Exercise issues and aging
3. Aquatic therapy services in women's Health
4. Physiotherapy management of women with long term physical disabilities

### **Part VII Electrical Modalities in OBG**

TENS, IFT, Ultra Sound, Electrical Stimulation, Biofeedback, SWD.

#### **Recommended Books**

1. Ruth Sapsford, Joanne Bullock Saxton, Sue Markwell, "Women's Health: A Textbook for Physiotherapists, 1998, Bailliere Tindall.
2. Physiotherapy in Obstetrics and Gynecology, Margaret Polden and Jill Mantle, Butterworth-Heinemann Publishers, Stoneham, MA, 1990
3. Obstetrics and Gynecologic Physiotherapy, Elaine Wilder, Churchill Hill Livingstone.
4. Rebecca G. Stephenson, Linda J. O' Connor, "Obstetric and Gynecologic Care in Physical Therapy", 2000, Slack Incorporated 2 edition.
5. Carolyn Kisner, Colby Allen Iynn, "Therapeutic Exercise Foundations and Techniques, 5<sup>th</sup> Edition.
6. Bo, Kari; Berghmans, Bary, "Evidence-based Physical Therapy for the Pelvic Floor: Bridging Science and Clinical Practice", 2007, Churchill Livingstone (London)
7. Irion, Jean M.; Irion, Glenn, "Women's Health in Physical Therapy: Principle and Practices for Rehabilitation Professional", 2009, Lippincott Williams and Wilkins (Philadelphia).
8. David Wise, Rodney U. Anderson, J. Laycock, "Therapeutic Management of Incontinence and Pelvic Pain: Pelvic Organ Disorders", 2007, Springer; 2nd Ed. Edition.
9. Matthew Parsons, Linda Cardozo, "Female Urinary Incontinence in Practice", 2004, Royal Society of Medicine Press.
10. John Cox and Jeni Holden, "Perinatal Mental Health - a guide to the Edinburgh Postnatal Depression Scale", 2003, Gaskell Publisher.
11. Carrie Hall and Lori Thein Brody, "Therapeutic Exercise: Moving Towards Function, 2005, Lippincott Williams & Wilkins.
12. Padubidri Vg Shirish N Daftary, Shaw's Textbook Of Gynecology, Elsevier India P Ltd 2008.
13. Gary Cunningham et al, Williams Obstetrics, McGraw Hill Professional, 2001
13. Kevin P Hanretty, et al, Obstetrics Illustrated, Churchill Livingstone; 6 edition (May 15, 2003) 2003.
14. David MaKay Hart, et al Gynaecology Illustrated, Churchill Livingstone 2000.

## **Specialty VII Physiotherapy in Hand Conditions**

### **Part I Foundational Concepts**

### **Part II Part I Physiotherapy Management for Hand conditions & Dysfunctions**

### **Part III Special Techniques**

- Edema control
- Splinting position & techniques
- De-sensitization
- Motor re-education
- Restoration of ROM
- Joint mobilization techniques
- Soft tissue techniques in hand
- Scar mobilization
- Sensory reeducation
- Pain management
- Hand protection & hand care
- Therapeutic exercises
- Muscle strengthening & endurance
- Roping
- Taping Technique
- Modalities in the PT management of hand conditions
- PNF
- Arthroplasty Physiotherapy protocols

### **Part IV Evidence Based Physiotherapy Protocols in Hand Conditions**

Various protocols for flexor & extensor tendon injury

Hand burns

Post operative management of skin graft

Post op management after simple hand surgery

Arthroplasty protocol

Wound care

Short arc motion (Sam) protocol

Flexor tendon repair- Kleinert protocol

### **Part V Special Considerations**

Psychology of loss, self-image, self-esteem and recovery;

Social impact of upper limb trauma and disease

### **Recommended books**

1. Rehabilitation of the Hand and Upper Limb 1<sup>st</sup> edition / Prossers Conolly
2. Examination of the Hand and Wrist 2<sup>nd</sup> edition / Tubiana, Thomine, Mackin
3. Hand Therapy Principles and Practice 1<sup>st</sup> edition / Salter, Cheshire
4. Common Hand problems in Primary Care 1<sup>st</sup> edition / Cancannon
5. Hand Pain and Impairment 3<sup>rd</sup> edition / Cailliet
6. Hand Rehabilitation 1<sup>st</sup> edition /Jalkenstein, Cessard

## **Specialty VIII Community Physiotherapy**

### **Part I Foundational Concepts in Community Physiotherapy**

#### **Unit**

1. Historical development of community health and community Physiotherapy- World and India, various health and family welfare committees
2. Principles of community based rehabilitation
3. Population studies and epidemiological implications of impairment, disability and handicap
4. Basic concepts of community based rehabilitation
5. Physiotherapist as a master trainer in CBR.
6. Bioethics ethico-moral codes of conduct physiotherapy ethics
7. Evidence based practice in community health.
8. Clinical decision-making skill in assessment & management of dysfunction related to community health.
9. Scope of Physiotherapy in community
10. Multicultural psychology and its influence on psychosocial rehabilitation

### **Part II Physiotherapy Interventions in Community**

#### **Unit**

1. Physical fitness
2. Principles of fitness training for health promotion in community
3. Stress management through yoga and psychosomatic approaches.
4. Home exercise pro grams for various classifications of disabilities.
5. Physiotherapy in maternal and child health care.
6. Exercise prescription for the elderly
7. Psychosocial and safety issues in elderly
8. Geriatric rehabilitation
9. Holistic physiotherapy for the aged.
10. Community mental health

### **Part III Physiotherapy in Occupational and Industrial Health**

#### **Unit**

1. Industrial hygiene
2. Vulnerable workers group and labor law
3. Industrial Physiotherapy
4. Injury prevention and returning the worker to productivity
5. Ergonomics: principles, issues related to hand tools, posture, material handling and lifting
6. Prevention of work related injuries and redesigning workspace, designing auditory and visual displays for workers; occupational stress; environmental pollution – noise, vibration etc.

7. Assistive technology used for stability & mobility to enhance function
8. Appropriate technology, skill transfer, sustainability, disability evaluation, concessions available to persons with disability.
9. Application of & environmental modification techniques to improve quality of life. information, education and communication

#### **Part IV Role of Physiotherapist in National Health Care Delivery System**

##### **Unit**

1. Health care delivery programme in urban and rural areas
2. Disability survey
3. Epidemiological aspects and demands of Physiotherapy services
4. Concept of rural camps and integration of infrastructural service and voluntary agencies, extension services and mobile units.
5. Institute based rehabilitation services and multi-disciplinary approach.
6. Methodology of CBR with reference to national health delivery system.
7. Role of national institutes, district rehabilitation centre and primary health centre (with appropriate exposure).
8. Public awareness to the various disabilities.
9. Communications.
10. Message generation and dissipation.
11. Persons with disability; Act – 1995 and related Government infrastructure.
12. Role of Government in CBR
13. Implementation of the act, Role of non Governmental agencies in CBR

#### **Part IV Special Considerations in Community**

##### **Unit**

1. Advances in disaster management.
2. Role of Physiotherapist as a member in disaster management team.
3. Health care in the community – Principles & delivery systems
4. IEC/BCC: Principles and strategies communication skills management information and evaluation system: records and reports information technology tele-medicine and tele-physiotherapy journalism mass media
5. Regulatory agencies & legal issues
6. Legal issues: Legislation, labor unions, ILO and WHO recommendations, factories Act, ESI act
7. Recent advances in community physiotherapy
8. Research in community PHYSIOTHERAPY

##### **Recommended Books**

1. Developing cultural competence in physical therapy practice, Jill black lattanzi, Larry D. Purnell (2006 F.A. Davis).
2. Industrial therapy, Key.G.L. (1987 Mosby)
3. Physiotherapy in the community , Gibson, Ann. 1988, Woodhead-Faulkner

(Cambridge, Wolfeboro, N.H., USA)

4. Community Rehabilitation in Neurology, Michael P. Barnes, Harriet Radermacher, Cambridge University Press 2009

5. Community Care for Health Professionals, Ann Crompton and Mary Ashwin, (Butterworth – Heinemann 2000)



## **Specialty IX Geriatric Physiotherapy**

### **Part I Foundations of Geriatric Physiotherapy**

#### **Unit**

1. Implications of an ageing population for rehabilitation
2. Communication values and quality of life
3. Physiological changes associated with ageing
4. Arthrokinesiologic consideration in the aged adult
5. Sensory motor changes and adaptations in the older adult
6. Ethical and legal issues in geriatric Physiotherapy
7. Patient education as intervention

### **Part II Intervention for Common Geriatric Clinical Manifestations**

#### **Unit**

1. Impaired ventilation and respiration in the older adult
2. Muscle fatigue and impaired muscle endurance in the older adults
3. Endurance training of the older adult
4. Posture in the older adults
5. Balance and falls in the elderly: issues in evaluation and treatment
6. Urinary incontinence and impairment of the pelvic floor in the older adult
7. Conservative pain management for the older patient
8. Chronic dermal wounds in older adult

### **Part III Physiotherapy Procedures used in Geriatric population**

#### **Unit**

1. Functional training
2. Ambulation: A framework of practice applied to a functional outcome
3. Lower extremity orthotics in geriatric rehabilitation
4. Lower limb prosthetic requirement in the older adults

### **Part IV Programs for Special Population**

#### **Unit**

1. The frail and institutionalized elder
2. The well elderly
3. The older athlete
4. Older persons with developmental disabilities

### **Recommended Books**

1. **Geriatric Physical Therapy** by Andrew A. Guccione, 2<sup>nd</sup> Edition (Mosby 2000)
2. **Developing cultural competence in Physical Therapy Practice** by Jill Black Lattanzi,

Larry D. Purnell (F.A.Davis Company, Philadelphia 2006)

3. **Rehabilitation of the aging and elderly patient** by Gerald Felsenthal, Susan J. Garrison, Franz U. Steinberg (Williams & Wilkins 1994)

4. **Physical Therapy of the geriatric patient** by Jackson Osa. Churchill Livingstone. New York.

5. **Geriatric Physical Therapy: A Clinical Approach** by Carole B. Lewis and Jennifer Bottomley (1993)

1. **Geriatric Rehabilitation Manual** by Timothy L. Kauffman (1999)

7. Manual of Geriatric Rehabilitation by David X. Cifu (2003)

8. Functional Fitness for Older Adults by Patricia A. Brill (2004)

9. Epidemiology of Aging – An ecological approach by William A. Satariano (Jones And Bartlett publishers, 2006).

10. Little Black book of Geriatrics, by Karen Gershman, McCullough Dennis 4<sup>th</sup> Edition (Jones and Bartlett publishers, 2008).

11. Burnside's working with older adults, Group process and techniques by Barbara Haight, Faith Gibson; 4<sup>th</sup> Edition (Jones and Bartlett publishers, 2005).

## 31. CHECK LISTS

### APPENDIX 1: TEACHING SKILL EVALUATION FORM

**Student:**

**Date :**

**Evaluator:**

#### **Rating of Skill**

- 5 - Outstanding
- 4 - Good
- 3 - Satisfactory
- 2 - Poor
- 1 - Unacceptable

1. Specifies purposes of the lecture clearly in the Introduction
2. Makes clear transitions between segments of the lecture
3. Presents divergent view points for contrast and comparison
4. Uses clear, relevant examples to illustrate main ideas
5. Clarifies technical terminology
6. Speaks at suitable volume/ pace, speaking style
7. Uses eye contact (Scans total audience)
8. Uses a variety of facial expressions
9. Uses hands and arms appropriately/moves purposefully
10. Effectively used Black Board, AV Aids
11. Summary of main points
12. Ask questions
13. Answer questions asked by audience
14. Content coverage
15. Rapport with students

Total Score

#### **Overall Score**

- 61 – 75 : Excellent
- 51 – 60 : Good
- 41 – 50 : Satisfactory
- 31 – 20 : Poor
- Less than 20 : Unacceptable

## **APPENDIX 2: JOURNAL CLUB PRESENTATION EVALUATION FORM**

Student :

Date :

Evaluator :

### **Rating of Skill**

5 - Outstanding

4 - Good

3 - Satisfactory

2 - Poor

1 - Unacceptable

1. Article chosen
2. Specifies purposes / goal of the study
3. Whether cross references have been consulted
4. Presents the Methodology Clearly
5. Clarifies Outcome measures
6. Presents the Results Clearly
7. Power of the study
8. Presents the discussion clearly
9. Limitations of the study
10. Ethical issues
11. Describe how the results can or cannot be applied in our situation
12. Their own decision about the utility of the study in our practice
13. Does not needed to reread article
14. Summarizes Presentation
15. Ability to defend their study

Total Score

Overall Score

61 – 75 : Excellent

51 – 60 : Good

41 – 50 : Satisfactory

31 – 20 : Poor

Less than 20 : Unacceptable

### **APPENDIX 3: PERFORMANCE EVALUATION FORM**

**Student :**

**Date :**

**Evaluator :**

**Rating of Skill**

5 - Outstanding

4 - Good

3 - Satisfactory

2 - Poor

1 - Unacceptable

1. Patient Interview
2. Physiotherapy observation skills
3. Physiotherapy assessment skills
4. Procedural skills
5. Knowledge of physiotherapy Instrumentation
6. Treatment planning
7. Principle of treatment intervention
8. Execution of treatment intervention
9. Evidence Based Practice
10. Practice based learning and improvement
11. Planning and conducting clinical research
12. Work Ethics
13. Interpersonal skills / Communication skills
14. Instructional skills
15. Documentation

Total Score

Overall Score

61 – 75 : Excellent

51 – 60 : Good

41 – 50 : Satisfactory

31 – 20 : Poor

Less than 20 : Unacceptable

**APPENDIX 4: SEMINAR EVALUATION FORM****Student :****Date :****Evaluator :****Rating of Skill**

5 - Outstanding

4 - Good

3 - Satisfactory

2 - Poor

1 - Unacceptable

1. Met the Professional objectives
2. Makes clear transitions between segments of the lecture
3. Presents divergent view points for contrast and comparison
4. Presentation was logical and clear
5. Clarifies terminologies in Physiotherapy
6. Speaks at suitable volume/ pace, speaking style
7. Eye contact
8. Absence of distracting mannerisms
9. Effectively used Black Board, AV Aids
10. Content coverage
11. Provide appropriate duration
12. Interaction with others was beneficial
13. Provided concise and thoughtful answer to the questions asked by the audience
14. Demonstrated competence in Subject matter
15. Present the references and Sources effectively

Total Score

Overall Score

61 – 75 : Excellent

51 – 60 : Good

41 – 50 : Satisfactory

31 – 20 : Poor

Less than 20 : Unacceptable

## **APPENDIX 5: CASE PRESENTATION EVALUATION FORM**

**Student :**

**Date :**

**Evaluator :**

### **Rating of Skill**

5 - Outstanding

4 - Good

3 - Satisfactory

2 - Poor

1 - Unacceptable

1. Subjective Examination
2. Objective Examination
3. Logical sequences
4. Treatment planning
5. Demonstration of examination skills
6. Demonstration of intervention skills
7. Explain the rationale of Treatment interventions
8. Understanding of movement dysfunction
9. Clarity of Presentation
10. Answer to the questions

Total Score

### **Overall Score**

41 – 50 : Excellent

31 – 40 : Good

21 – 30 : Satisfactory

15 – 20 : Poor

Less than 15 : Unacceptable

## **APPENDIX 6: DESSERTATION PRESENTATION EVALUATION FORM**

**Student :**

**Date :**

**Evaluator :**

### **Rating of Skill**

5 - Outstanding

4 - Good

3 - Satisfactory

2 - Poor

1 - Unacceptable

1. Selection of topic
2. Knowledge about the selected topic
3. Need of the study
4. Statement of hypothesis
5. Review of literature
6. Selection of research design
7. Selection of appropriate Sample size
8. Selection of appropriate Sampling technique
9. Selection of appropriate statistical tool
10. Selection of appropriate Outcome measures
11. Quality of protocol
12. Power of the study
13. Logical sequence of presentation
14. Answer questions asked by evaluators
15. Use of research terminologies

Total Score

### **Overall Score**

61 – 75 : Excellent

51 – 60 : Good

41 – 50 : Satisfactory

31 – 20 : Poor

Less than 20 : Unacceptable



## **APPENDIX 7: EVALUATION OF DISSERTATION WORK BY THE GUIDE**

**Student :**

**Date :**

**Guide :**

### **Rating of Skill**

5 - Outstanding

4 - Good

3 - Satisfactory

2 - Poor

1 - Unacceptable

1. Periodic consultation with the guide
2. Regular collection of case material
3. Depth of analysis and discussion
4. Presentation of findings
5. Quality of final output

Total Score

### **Overall score:**

21 – 25 - Outstanding

16 – 20 - Good

11 – 15 - Satisfactory

6 – 10 - Poor

5 and below 5 - Unacceptable