

**KRISHNA INSTITUTE OF MEDICAL SCIENCES  
“DEEMED TO BE UNIVERSITY”, KARAD.  
KRISHNA COLLEGE OF PHYSIOTHERAPY**

**POST GRADUATE - MASTER OF PHYSIOTHERAPY (02 YEARS)**

**M.P.Th IN MUSCULOSKELETAL SCIENCES  
PROGRAMME CODE: 3201**

**AIM:**

The Master of Physiotherapy (specialty) Programme is directed towards rendering competency in knowledge and skills related to advance physiotherapeutic skills especially related to specialty Clinical fields to enhance professional Physiotherapy Practice, Education and Research, in line with global standards.

**COURSE OUTLINE:**

The Master's degree in Physiotherapy is a two year full time programme consisting of classroom teaching, self-academic activities and clinical postings, with self-directed evidence based practice. In the first year theoretical basis of physiotherapy is refreshed along with research methodology, biostatistics & teaching technology. The students are rotated in all areas of clinical expertise including their specialty during this period. They are required to choose their study for dissertation and submit a synopsis. During the second year the students will be posted in their area of specialty. They are required to complete and submit their dissertation. The learning program includes seminars, journal reviews, case presentations, case discussions and classroom teaching. Some of the clinical postings may be provided at other reputed centers in the country in order to offer a wider spectrum of experience. The students are encouraged to attend conferences, workshops to enhance their knowledge during the course of study. University examinations are held at the end of first year and at the end of second year.

**COURSE OUTCOME:**

This course promotes the development of skills, knowledge and attributes of a reflective, evidence-based practitioner with special attributes to enhance his / her career in a better way as per the society needs.

**ELIGIBILITY FOR ADMISSION:**

1. He/she has passed the Bachelor of Physiotherapy recognized by any Indian University with

pass marks (50%).

2. Admission to Master of Physiotherapy course shall be made as per the rules by the competent authority. Entrance test will be conducted by KIMSDU as per the rules by competent authority.

### **OBJECTIVES:**

At the completion of this course, the student should be -

1. Be able to do a physical therapy diagnosis using a frame work of ICF that is to identify the impairment of body structure, body function, environmental and personal factors and to address the activity limitations and participations restrictions and able to execute all routine physiotherapeutic procedures with clinical reasoning & evidence based practice.
2. Able to be a prominent member of the multidisciplinary team and treat all the conditions which need physiotherapeutic procedures.
3. Able to provide adequate knowledge about the treatment procedures and its benefit.
4. Able to transfer knowledge and skills to students as well as young professionals.
5. Able to perform independent physiotherapy assessment and treatment for patients.
6. To plan and implement need based physiotherapy interventions for all clinical conditions related to respective specialty in acute, chronic cases, critical care, independent practice including health promotion and prevention.
7. Able to undertake independent research in the field of physiotherapy.
8. Learn multidisciplinary practice skills.
9. Able to practice and assess patient independently.
10. Able to practice in his / her specialty area with advanced knowledge and skills.
11. Able to take up physiotherapy teaching assignments independently for undergraduate teaching programme.
12. Able to prepare project proposal with selected research design and interpret the evaluated outcome measures (using sound data processing techniques and statistical methods).

### **SPECIALTIES OFFERED:**

1. MPT in Musculoskeletal Sciences
2. MPT in Neurosciences
3. MPT in Cardio Pulmonary Sciences
4. MPT in Community Health
5. MPT in Pediatric Neurology

## **ASSESSMENT:**

Two exams will be conducted in theory and practical at the end of first and final academic years. The Attendance and progress report scrutinized and certified by the Head of the Department and Head of the Institution to be submitted to the university with the exam form for both first & second year examination.

## **YEAR WISE SUBJECTS:**

### **MPT - I YEAR**

1. Basic Sciences.
2. Basic Therapeutics.
3. Advanced Therapeutics - As per specialty (5 Specialties.)
4. Research Methodology & Biostatistics.

### **MPT – II YEAR SPECIALTIES: (2 SUBJECTS IN EACH SPECIALITY)**

1. General Physiotherapy - As per specialties (5 Specialties.)
  2. Advances in Physiotherapy - As per 5 Specialties.
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1. MPT in Musculoskeletal Sciences.
  2. MPT in Neurosciences.
  3. MPT in Cardio Pulmonary Sciences.
  4. MPT in Community Health.
  5. MPT in Pediatric Neurology.

## **3201 - M.P.Th IN MUSCULOSKELETAL SCIENCES**

### **M.P.Th - I Year**

1. **3201 - 11: BASIC SCIENCES**
2. **3201 - 12: BASIC THERAPEUTICS**
3. **3201 - 13: ADVANCED THERAPEUTICS IN MUSCULOSKELETAL CONDITIONS**
4. **3201 - 14: BIOSTATISTICS AND RESEARCH METHODOLOGY**

### **M.P.Th - II Year**

1. **3201 - 21: GENERAL PHYSIOTHERAPY IN MUSCULOSKELETAL SCIENCES**
2. **3201 - 22: ADVANCES IN MUSCULOSKELETAL SCIENCES**

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**3201-11: BASIC SCIENCES.**

| Sr. No | Content  | Teaching Hours    |                    | Must know | Desirable to know | Nice to know |
|--------|--|-------------------|--------------------|-----------|-------------------|--------------|
|        |  | Didactic (98 Hrs) | Practical (82 Hrs) |           |                   |              |
| 1.     | PRINCIPLES AND ETHICS:<br>a. Theoretical background of physiotherapy profession. | 10 Hrs            | -                  | MK        |                   |              |
|        | b. Professional sources in the community.  |                   |                    |           |                   |              |
|        | c. Principles and practice of physiotherapy in India.                            |                   |                    |           |                   |              |
|        | d. Ethical background of physiotherapy.  |                   |                    |           |                   |              |
|        | e. Ethics of IAP & WCPT. Professional ethics.                                    |                   |                    |           |                   |              |
|        | f. Modified Referral ethics in the practice of Physiotherapy                     |                   |                    |           |                   |              |
|        | g. Governing body of Physiotherapy Profession state & central level.             |                   |                    |           |                   |              |
| 2.     | EXERCISE PHYSIOLOGY AND NUTRITION:<br>a. Nutrition and physical performance.     | 15 Hrs            | 5 Hrs              | MK        |                   |              |
|        | b. Energy transfer.  |                   |                    |           |                   |              |
|        | c. Systemic adaptation during exercise.  |                   |                    |           |                   |              |
|        | d. Physical performance.   |                   |                    |           |                   |              |
|        | e. Factors affecting physical performance.                                       |                   |                    |           |                   |              |
|        | f. Fatigue and lactate.  |                   |                    |           |                   |              |
|        | g. Training.   |                   |                    |           |                   |              |
|        | h. Fitness and testing.  |                   |                    |           |                   |              |
|        | i. Obesity.  |                   |                    |           |                   |              |
|        | j. Diabetes.   |                   |                    |           |                   |              |

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|-----|--|--------|--------|----|----|----|
|     | k. Applied exercise physiology.  |        |        |    |    |    |
| 3.  | PATHOMECHANICS AND CLINICAL KINESIOLOGY:<br>Review of mechanical principles and applied biomechanics of human body.                                  | 25 Hrs | 10 Hrs | MK |    |    |
| 4.  | Review of various types of exercises, principles and its applications for joint mobility, muscle re-education, strengthening and endurance training. |        |        | MK |    |    |
| 5.  | Posture, analysis of normal and abnormal posture, posture training.  | 5 Hrs  | 5 Hrs  |    | DK |    |
| 6.  | Gait, analysis of normal and abnormal gait, gait training.   | 5 Hrs  | 15 Hrs |    |    | NK |
| 7.  | ADL, assessment and training of ADL.   | 3 Hrs  | 10 Hrs |    | DK |    |
| 8.  | Measuring tools in therapeutics.   | 5 Hrs  | 15 Hrs |    | DK |    |
| 9.  | ometer, pressure transducers, force plates, spondylometer, anthropometric and etc.   | 5 Hrs  | 10 Hrs | MK |    |    |
| 10. | ORTHOTICS, PROSTHETICS & BIOENGINEERING:   | 25 Hrs | 12 Hrs | MK |    |    |
|     | a. Orthosis of spine.  |        |        |    |    |    |
|     | b. Orthosis of upper limb.   |        |        |    |    |    |
|     | c. Orthosis of lower limb.   |        |        |    |    |    |
|     | d. AK and BK Prosthesis.   |        |        |    |    |    |
|     | e. Prosthetic fitting and training.  |        |        |    |    |    |
|     | f. Biomechanical principles governing them.  |        |        |    |    |    |

**3201-12: BASIC THERAPEUTICS.**

| Sr. No | Content   | Teaching Hours    |                    | Must know | Desirable to know | Nice to know |
|--------|---|-------------------|--------------------|-----------|-------------------|--------------|
|        |   | Didactic (80 Hrs) | Practical (80 Hrs) |           |                   |              |
| 1.     | Basic exercises   | 5 Hrs             | 10 Hrs             |           |                   |              |
| 2.     | <b>Basic Electrotherapeutics:</b><br>Review the principles and applications of the following electrotherapy modalities and justify the effects and uses of it with evidence | 25 Hrs            | 25 Hrs             | MK        |                   |              |
|        | 1. Short wave diathermy.  |                   |                    |           |                   |              |
|        | 2. Microwave diathermy.   |                   |                    |           |                   |              |
|        | 3. Ultrasonic therapy.  |                   |                    |           |                   |              |
|        | 4. Ultraviolet radiation.   |                   |                    |           |                   |              |
|        | 5. Infrared radiation.  |                   |                    |           |                   |              |
|        | 6. Iontophoresis.   |                   |                    |           |                   |              |
|        | 7. Faradic stimulation.   |                   |                    |           |                   |              |
|        | 8. Dynamic currents.  |                   |                    |           |                   |              |
|        | 9. Interferential therapy.  |                   |                    |           |                   |              |
|        | 10. Cryotherapy.  |                   |                    |           |                   |              |
|        | 11. TENS.   |                   |                    |           |                   |              |
|        | 12. LASER Therapy.  |                   |                    |           |                   |              |
|        | 13. Paraffin wax bath.  |                   |                    |           |                   |              |
|        | 14. Hydrotherapy.   |                   |                    |           |                   |              |
|        | 15. Hydro collator packs.   |                   |                    |           |                   |              |
|        | 16. Contrast bath.  |                   |                    |           |                   |              |
|        | 17. Traction.   |                   |                    |           |                   |              |
|        | 18. Mechanical external compression therapy.  |                   |                    |           |                   |              |
|        | 19. Fluidotherapy.  |                   |                    |           |                   |              |
|        | 20. Phonophoresis.  |                   |                    |           |                   |              |
| 3.     | Pain and pain modulation.   | 5 Hrs             | 5 Hrs              |           | DK                |              |
| 4.     | Conventional electro diagnosis.   | 5 Hrs             | 5 Hrs              | MK        |                   |              |
|        | 1) FG Test.   |                   |                    |           |                   |              |
|        | 2) SD Curve.  |                   |                    |           |                   |              |
| 5.     | Electrocardiogram.  | 2 Hrs             | 3 Hrs              |           | DK                |              |
| 6.     | Echocardiography.   | 2 Hrs             | 2 Hrs              |           |                   | NK           |
| 7.     | Physical & functional diagnosis.  | 20 Hrs            | 20 Hrs             | MK        |                   |              |

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|--|---|--------|--------|----|--|--|
|  | 1. Clinical examination in general and detection of movement dysfunction.   |        |        |    |  |  |
|  | 2. Principles of pathological investigations and imaging techniques related to neuromuscular, skeletal and cardiopulmonary disorders with interpretation  |        |        |    |  |  |
|  | 3. Development screening development diagnosis, neurodevelopment assessment and motor learning-voluntary control assessment   |        |        |    |  |  |
|  | 4. Anthropometric measurements  |        |        |    |  |  |
|  | 5. Physical fitness assessment by   |        |        |    |  |  |
|  | i. Range of motion  |        |        |    |  |  |
|  | ii. Muscle strength, endurance and skills   |        |        |    |  |  |
|  | iii. Body consumption   |        |        |    |  |  |
|  | iv. Cardiac efficiency tests and spirometer   |        |        |    |  |  |
|  | v. Fitness test for sport   |        |        |    |  |  |
|  | 6. Electro-diagnosis, clinical and kinesiological electromyography and evoked potential studies. Biophysical measurements, physiotherapy modalities techniques and approaches, Electro diagnosis, conventional methods, electromyography sensory and motor nerve conduction velocity studies, spinal and somato-sensory evoked potentials |        |        |    |  |  |
|  | Radiological investigation.   | 16 Hrs | 10 Hrs | MK |  |  |
|  | 1) X – Ray.   |        |        |    |  |  |
|  | 2) CT / MRI Scan.   |        |        |    |  |  |
|  | 3) Blood investigation (routine)  |        |        |    |  |  |

**3201-13: ADVANCED THERAPEUTICS IN MUSCULOSKELETAL SCIENCES.**

| Sr no. | Topic   | Teaching hours    |                       | Must know | Desire to know | Nice to know |
|--------|---|-------------------|-----------------------|-----------|----------------|--------------|
|        |   | Didactic (25 Hrs) | Practical's (100 Hrs) |           |                |              |
| 1      | Clinical decision making based on musculoskeletal dysfunction   | 2 Hrs             | 10 Hrs                | MK        |                |              |
| 2      | Manual therapy skills:<br>1. Introduction and orientation to all the manual skills.   | 5 Hrs             | 40 Hrs                | MK        |                |              |
|        | 2.Principles and practice of Maitland manipulation, Mulligan concept, McKenzie's regime of exercises, Kaltenborn, Cyriax manipulation, MET, PRT, MFR, Neural tissue mobilization, etc.  |                   |                       |           |                |              |
| 3.     | Application of advanced musculoskeletal approaches for common musculoskeletal problems:<br>I. Pain<br>II. Joint mobility<br>III. Muscle power, strength and endurance<br>IV. Limb edema, swelling and effusion<br>V. Flexibility<br>VI. Gait/postural dysfunction<br>VII. Soft tissue dysfunction | 4 Hrs             | 10 Hrs                | MK        |                |              |
| 4.     | Investigations specific to orthopedic disorders.<br>I. Advanced electrotherapeutic modalities   | 12 Hrs            | 30 Hrs                |           | DK             |              |
|        | II. Advanced electro diagnostics- EMG/NCV<br>Electromyography(EMG)  |                   |                       |           |                |              |
|        | 1) Instrumentation.   |                   |                       |           |                |              |
|        | 2) Types of electrodes.   |                   |                       |           |                |              |
|        |   |                   |                       |           |                |              |



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|--|---|--|--|--|--|--|
|  | 3) Cathode ray oscilloscope digital processing. |  |  |  |  |  |
|  | 4) Electrical safety.                           |  |  |  |  |  |
|  | 5) Artifacts.                                   |  |  |  |  |  |
|  | 6) Normal and abnormal motor action potential.  |  |  |  |  |  |
|  | 7) EMG Examination.                             |  |  |  |  |  |
|  | 1. Muscle at rest.                              |  |  |  |  |  |
|  | 2. Insertional activity.                        |  |  |  |  |  |
|  | 3. Minimum effort.                              |  |  |  |  |  |
|  | 4. Maximum effort.                              |  |  |  |  |  |
|  | 8) Motor units potential in disease.            |  |  |  |  |  |
|  | I. Motor neuron disease.                        |  |  |  |  |  |
|  | II. Hereditary motor neuron disease.            |  |  |  |  |  |
|  | III. Poliomyelitis.                             |  |  |  |  |  |
|  | IV. Muscular dystrophy.                         |  |  |  |  |  |
|  | V. Inflammatory myopathies.                     |  |  |  |  |  |
|  | VI. Congenital myopathies                       |  |  |  |  |  |
|  | VII. Myotonia.                                  |  |  |  |  |  |
|  | VIII. Metabolic myopathies.                     |  |  |  |  |  |
|  | 9) Quantitative methods in EMG.                 |  |  |  |  |  |
|  | Nerve conduction studies(NCV):                  |  |  |  |  |  |
|  | I. Motor and sensory conduction.                |  |  |  |  |  |

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|---|--|-------|--------|----|--|--|
|   | II. Physiology of nerve conduction.                                |       |        |    |  |  |
|   | III. General factors affecting nerve conduction.                   |       |        |    |  |  |
|   | IV. Nerve stimulation.   |       |        |    |  |  |
|   | V. H wave.   |       |        |    |  |  |
|   | VI. F wave.  |       |        |    |  |  |
|   | VII. Entrapment syndromes.   |       |        |    |  |  |
|   | a) Carpel tunnel syndrome.   |       |        |    |  |  |
|   | b) EMG studies in Myasthenia gravis.                               |       |        |    |  |  |
|   | c) EMG studies in Decremental studies Lambert myasthenia syndrome. |       |        |    |  |  |
|   | d) Electro diagnosis in Radiculopathy.                             |       |        |    |  |  |
|   | e) Peripheral neuropathies.  |       |        |    |  |  |
|   | - Nerve conduction changes in peripheral neuropathy.               |       |        |    |  |  |
|   | - EMG changes in peripheral neuropathy.                            |       |        |    |  |  |
| 5 | Orthopedic special tests and outcome measures                      | 2 Hrs | 10 Hrs | MK |  |  |

**3201-14: BIOSTATISTICS AND RESEARCH METHODOLOGY.**

**SYLLABUS:**

| Sr No. | Contents  | TEACHING HOURS (100 Hrs) | Must Know | Desirable to Know | Nice to Know |
|--------|---|--------------------------|-----------|-------------------|--------------|
| 1      | <b>Research methodology:</b><br>I. How to read critique research.<br>II. Introduction to research: frame work: levels of measurement: variables<br>III. Basic research concepts: validity and reliability.<br>IV. Design, instrumentation and analysis for qualitative research.<br>V. Design, instrumentation and analysis for quantitative research<br>VI. Design, instrumentation and analysis for quasi-experimental research<br>VII. How to write research proposal<br>VIII. Ethics in research<br>IX. Importance of software in research<br>X. Importance of SPSS, PowerPoint, etc in research. | 60 Hrs                   | MK        |                   |              |
| 2      | <b>Biostatistics:</b><br>I. Descriptive and inferential statistics<br>II. Types of data qualitative and quantitative<br>III. Frequency distributions<br>IV. Describing data with graphs<br>V. Describing data with averages mode median mean<br>VI. Describing variability variance standard deviation etc<br>VII. Normal distributions<br>VIII. Interpretations of r   | 40 Hrs                   | MK        |                   |              |

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|--|---|--|--|--|--|
|  | IX. Hypothesis testing                                    |  |  |  |  |
|  | X. T tests  |  |  |  |  |
|  | XI. ANOVA   |  |  |  |  |
|  | XII. Probability  |  |  |  |  |
|  | XIII. Type I and type II errors                           |  |  |  |  |
|  | XIV. Parametric and non-parametric tests                  |  |  |  |  |
|  | XV. Simple statistical analysis using available software. |  |  |  |  |

**3201-21: GENERAL PHYSIOTHERAPY IN MUSCULOSKELETAL SCIENCES**

**SYLLABUS:**

| Sr.no | Content  | Teaching Hrs.     |                     | Must know | Desirable to know | Nice to know |
|-------|--|-------------------|---------------------|-----------|-------------------|--------------|
|       |  | Didactic (350Hrs) | Practical (350 Hrs) |           |                   |              |
| 1.    | Patho-mechanics of various Orthopedic disorders<br>a. Degenerative disorders<br>b. Inflammatory conditions<br>c. Infectious conditions<br>d. Traumatic conditions<br>e. Miscellaneous conditions   | 75 Hrs            | 75 Hrs              | MK        |                   |              |
| 2.    | Screening of Orthopedic problems based on Patho-mechanism.<br>a. Extremities & Spine   | 75 Hrs            | 75 Hrs              | MK        |                   |              |
| 3.    | Basis for Therapeutic decision making: Planning and implementation of Physiotherapy treatment for various musculoskeletal problems   | 25 Hrs            | 10 Hrs              |           |                   |              |
| 4.    | Long term consequences of chronic orthopedic disorders on various systems<br>a. Muscle weakness<br>b. Movement dysfunction<br>c. Impaired functional disability<br>d. Changes in the Neuro-physiological functions & Cardio respiratory status.<br>e. Women's specific & age induced | 25 Hrs            | 25 Hrs              | MK        |                   |              |
| 5.    | Disability evaluation in detail with Special emphasis to:<br>a. Amputation Spinal cord injuries  | 25 Hrs            | 15 Hrs              | MK        |                   |              |

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|-----|--|--------|--------|----|----|--|
|     | <ul style="list-style-type: none"> <li>b. Brachial plexus</li> <li>c. Chronic inflammatory conditions</li> <li>d. Congenital disorders</li> </ul>  |        |        |    |    |  |
| 6.  | <p>Physiotherapy assessment &amp; Management of Miscellaneous conditions</p> <ul style="list-style-type: none"> <li>a. Wound healing in diabetes mellitus, leprosy, pressure sores</li> <li>b. Obesity</li> <li>c. Burns</li> <li>d. HIV</li> <li>e. Skin conditions</li> <li>f. Diabetes mellitus</li> <li>g. Malignancy</li> </ul> | 50 Hrs | 75 Hrs | MK |    |  |
| 7.  | National & International health programs for Musculoskeletal Physiotherapy interventions.  | 10 Hrs | -      | MK |    |  |
| 8.  | <p>Professional marketing strategies – Entrepreneurship</p> <ul style="list-style-type: none"> <li>a. Specialty clinics</li> <li>b. Independent Practice</li> <li>c. Joining organizations</li> <li>d. Groups</li> <li>e. NGO</li> <li>f. Specialty references</li> </ul>  | 15 Hrs | -      |    | DK |  |
| 9.  | Management strategies of various orthopedic disorders  | 25 Hrs | 50 Hrs | MK |    |  |
| 10. | Preventative physiotherapy in orthopedic disorders and team approach.  | 25 Hrs | 25 Hrs |    |    |  |

**3201-22: ADVANCES IN MUSCULOSKELETAL SCIENCES**

**SYLLABUS:**

| Sr no | Contents   | Teaching hours     |                     | Must Know | Desir able to know | Nice To know |
|-------|--|--------------------|---------------------|-----------|--------------------|--------------|
|       |  | Didactic (400 Hrs) | Practical (600 Hrs) |           |                    |              |
| 1.    | Conventional Orthopedic Physiotherapy approaches for various musculoskeletal problems: Spine and Extremities.  | 100 Hrs            | 200 Hrs             | MK        |                    |              |
|       | Physiotherapy management including PT/OT appliances for the following Musculoskeletal conditions.<br><br>Non traumatic: <ol style="list-style-type: none"> <li>a. Degenerative disorders</li> <li>b. Sero - ve &amp; + ve disorders</li> <li>c. Metabolic disorders</li> <li>d. Infective arthritis</li> <li>e. Inflammatory arthritis like RA, AS, etc.,</li> </ol> |                    |                     |           |                    |              |
|       | Traumatic : <ol style="list-style-type: none"> <li>a. Fractures</li> <li>b. Amputations</li> <li>c. Soft tissue injuries</li> </ol>  |                    |                     |           |                    |              |
|       | Surgical orthopedic conditions: <ol style="list-style-type: none"> <li>a. Joint replacement</li> <li>b. Tendon injuries</li> <li>c. Extremities &amp; Spine</li> </ol>   |                    |                     |           |                    |              |
|       | Miscellaneous conditions: <ol style="list-style-type: none"> <li>a. Hansen’s disease</li> <li>b. Burns</li> <li>c. Limb edema</li> <li>d. RSD</li> </ol>   |                    |                     |           |                    |              |

|    |  |          |          |    |  |    |
|----|--|----------|----------|----|--|----|
| 2. | Sports orthopedics - Special emphasis to women's specific sport's injuries   | 150 Hrs  | 100 Hrs  | MK |  |    |
|    | Briefly review the history of sports medicine, scope and philosophy, Medico legal issues, sports physiology in sports rehabilitation.  |          |          |    |  |    |
|    | <p>Sports and nutrition</p> <ul style="list-style-type: none"> <li>a. Significance of nutrition</li> <li>b. Common food fads</li> <li>c. Maximizing energy stores</li> <li>d. Maintaining adequate hydration</li> <li>e. Weight gain and loss</li> <li>f. Optimizing pre competition meal</li> <li>g. Ergogenic aids</li> <li>h. Vegetarianism</li> </ul>  | (40 Hrs) | (05 Hrs) | MK |  |    |
|    | <p>Principles of sports rehabilitation which includes prevention, diagnosis and treatment of:</p> <ul style="list-style-type: none"> <li>a. Injuries of upper limb, head and neck.</li> <li>b. Injuries of lower limb and spine</li> <li>c. Pediatric sports injuries</li> <li>d. Sports medicine for handicapped mainly for paraplegics, MR, wheel chair athletes, etc</li> <li>e. Role of Physiotherapist for occasional sports persons</li> </ul> | (40 Hrs) | (50 Hrs) | MK |  |    |
|    | <p>Sports medicine for women</p> <ul style="list-style-type: none"> <li>a. Gender differences in sports participation</li> <li>b. Common injuries in women</li> <li>c. Breast care</li> </ul>  | (10 Hrs) | (10 Hrs) |    |  | NK |



|    |  |          |          |    |  |  |
|----|--|----------|----------|----|--|--|
|    | <p>Sports specific injuries :</p> <ul style="list-style-type: none"> <li>a. Basket ball</li> <li>b. Hockey</li> <li>c. Soccer</li> <li>d. Track and field</li> <li>e. Swimming and diving</li> <li>f. Racket sports</li> <li>g. Cycling</li> <li>h. Volley ball</li> <li>i. Cricket</li> <li>j. Kabbadi</li> <li>k. Combat sports</li> <li>l. Dance</li> <li>m. Boxing</li> <li>n. Adventures sports, etc.,</li> </ul> | (40 Hrs) | (25 Hrs) | MK |  |  |
|    | <p>Pediatric orthopedics:</p> <ul style="list-style-type: none"> <li>a. Physiotherapy assessment and management of Pediatric musculoskeletal disorders</li> <li>b. Congenital disorders – CTEV, CDH, etc</li> <li>c. JRA</li> <li>d. Soft tissue injuries. Overuse injuries.</li> <li>e. Traumatic conditions.</li> <li>f. Pediatric orthopedic surgeries and Physiotherapy.</li> </ul>                                | (20 Hrs) | (10 Hrs) | MK |  |  |
| 2. | ADVANCED ORTHOPEDICS:  | 100 Hrs  | 200 Hrs  |    |  |  |
| a) | <p>Neuro dynamics and neural tissue mobilization</p> <ul style="list-style-type: none"> <li>a. Basic anatomy, physiology, biomechanics of neural tissue</li> <li>b. Clinical reasoning, principles of subjective, objective, treatment and re-assessment in spinal and extremity adverse neural tension</li> </ul>   | (40 Hrs) | (75 Hrs) | MK |  |  |

|    |  |          |           |    |    |  |
|----|--|----------|-----------|----|----|--|
|    | <p>disorders.</p> <p>c. Clinical presentation of intra neural and extra neural pathology.</p> <p>d. Indications and contra indications and precautions in neural tension testing and management of upper limb, lower limb and spine.</p>   |          |           |    |    |  |
| b) | <p>Manual Therapy for:</p> <p>a. Degenerative disorders</p> <p>b. Soft tissue injuries</p> <p>c. Musculoskeletal dysfunction</p>   | (40 Hrs) | (100 Hrs) | MK |    |  |
| c) | Neuro musculoskeletal tapping techniques for peripheral joint and spinal joint dysfunctions.   | (10 Hrs) | (15 Hrs)  |    | DK |  |
| d) | Aquatic therapy for musculoskeletal problems   | (10 Hrs) | (10 Hrs)  |    | DK |  |
| 3. | <p>Evidence based practice of physiotherapy in musculoskeletal sciences</p> <p>a) Medico legal issues</p> <p>b) Effective documental</p> <p>c) Effective communication</p>   | 30 Hrs   | 25 Hrs    | MK |    |  |
| 4. | <p>Convention radiological, anthropometric and blood investigations in musculoskeletal disorders like:</p> <p>a) X – Ray</p> <p>b) CT Scan</p> <p>c) MRI</p> <p>d) Bone marrow scanning</p> <p>e) Bone densitometry</p> <p>f) Routine blood investigations</p> <p>g) EMG &amp; NCV</p> | 20 Hrs   | 75 Hrs    | MK |    |  |

## BOOKS AND JOURNALS:

- 1) Essentials of Orthopedics for Physiotherapists by John Ebenezer—Jaypee Publications
- 2) Practical Fracture Treatment by Ronald Mc Rae, Max Esser—Churchill Livingstone
- 3) Oxford Textbook of Orthopedic & Trauma by Christopher Bulstrode, Joseph Buckwalter—Oxford University Press
- 4) Campbell's Operative Orthopedics.—By S. Terry Canale, 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 By 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
- 15) Skeletal Growth and development: Clinical issues and basic science advances. The Symposium Series by Joseph A Buckwalter—AAOS
- 16) Introduction to Physical Therapy, By Michael A. Pagliarulo - Mosby
- 17) Kinesiology: The mechanics and Pathomechanics of Human Movement by Carol A Oatis - Lippincott
- 18) Joint Mobilization/Manipulation: Extremity and Spinal Techniques by Susan L Edmond—Mosby
- 19) Foundations of Chiropractic by Meridell Gatterman—Mosby
- 20) Grieve's Modern Manual Therapy: The Vertebral Column, By Jeffrey Boyling and Gwendolen Jull – Churchill Livingstone
- 21) Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation, By Donald A. Neumann, PhD, PT—Mosby
- 22) Maitland's Peripheral Manipulation, By Elly Hengeveld, and Kevin Banks, - Butterworth- Heinemann
- 23) Maitland's Vertebral Manipulation, By Geoff D. Maitland, - Butterworth- Heinemann
- 24) Neuromuscular Rehabilitation in manual and physical therapies: Principles and Practice by Eyal Lederman—Churchill Livingstone
- 25) Orthopedic Physical Therapy Secrets by Jeffrey D Place—Elsevier
- 26) Principles and Practice of Orthopedics and Sports Medicine by Garret
- 27) A Physiotherapist's Guide to Clinical Measurement by John Edward Fox, and Richard Jasper Day—Elsevier
- 28) Orthotics and Prosthetics in Rehabilitation, By Michelle M. Lusardi, PhD, PT and Caroline

- C. Nielsen, PhD -Butterworth-Heinemann
- 28) Clinical Application of Neuromuscular Techniques: The Upper Body by Leon Chaitow, and Judith De Lany, -Elsevier
  - 29) Handbook of Postsurgical Rehabilitation Guidelines for the Orthopedic Clinician By Hospital for Special Surgery–Mosby
  - 30) An Illustrated Guide to Taping Techniques–Principles & Practice By Thomas John Hewetson – Mosby
  - 31) Paraplegia & Tetraplegia A Guide for Physiotherapists by Ida Bromley–Churchill Livingstone
  - 32) Therapeutic exercises using swiss ball By Caroline Corning Creager–Executive Physical therapy
  - 33) Manual Mobilization of the Joints–The Kaltenborn Method Volume I, II By Freddy kaltenborn
  - 34) Treat your own Back by Robin Mckenzie
  - 35) Cervical and Thoracic spine: Mechanical Diagnosis & Therapy Volume I & II By Robin Mckenzie
  - 36) The Lumbar Spine: Mechanical Diagnosis & Therapy Volume I & II By Robin Mckenzie
  - 37) The Human Extremities: Mechanical Diagnosis & Therapy by Robin Mckenzie
  - 38) Manual Therapy by Brian R Mulligan
  - 39) Documentation for Rehabilitation: A Guide to Clinical Decision Making, By Lori Quinn, and James Gordon -Saunders
  - 40) Clinical Orthopedic Rehabilitation by S Brent Brotzman
  - 41) Treatment and rehabilitation fractures by Vasantha L Moorthy & Stanley Hoppenfield- Lippincott
  33. Physiotherapy for Amputees: The Roehampton Approach by Barbara Engstrom – Churchill Livingstone
  - 42) Textbook of orthopedic medicine Vol I & II by James Cyriax - Bailliere

**Journals:**

- 1) Clinical Kinesiology
- 2) Journal of biomechanics
- 3) Journal of pediatric Orthopedics
- 4) Journal of Orthopaedic & Sports Physical Therapy (JOSPT).
- 5) Journal of Manual Therapy
- 6) Journal of Manual & Manipulative Therapy
- 7) Spine
- 8) Journal of Hand Therapy.