# KRISHNA VISHWA VIDYAPEETH, (DEEMED TO BE UNIVERSITY),

# KRISHNA COLLEGE OF PHYSIOTHERAPY

# KARAD, MAHARASHTRA.

**MASTER OF PHYSIOTHERAPY (M. P. Th)**

## CBCS PATTERN SYLLABUS

**M.P.Th - (CARDIO-PULMONARY SCIENCES.)**

**PROGRAMME CODE:3203**

**RULES FOR EXAMINATION SCHEME LEADING TO**

POST GRADUATE PHYSIOTHERAPY PROGRAMME
IN THE FACULTY OF PHYSIOTHERAPY
**(Approved by the Board of Management)**

**MASTER OF PHYSIOTHERAPY (M. P. Th.)**

**PREAMBLE:-**

The Department of Human Resource Development, Government of India, on the recommendation of the University Grants Commission (UGC) has accorded the status of a Deemed University to Krishna Vishwa Vidyapeeth, (Deemed To Be University), Karad for Faculty of Medicine, Dentistry. Physiotherapy Nursing, Allied Sciences and Pharmacy respectively.

The Degrees, Diploma and the Fellowship programmes of Krishna Vishwa Vidyapeeth, (Deemed To Be University), Karad shall have the same status as of those given by any Statutory University duly recognized by the University Grants Commission. (UGC).

The Master of Physiotherapy Programme is directed towards rendering training in Specialty discipline so as to enhance professional competence in order to fulfill requirement for Physiotherapy Education and Practice**.**

1. This shall apply to all the examinations leading to Post Graduate Physiotherapy namely Programmes offered: - Total Programmes offered: 10 Programmes.

| Sr No | Programme Code | Programme Name |
|---|---|---|
| 1. | 3201 | M.P.Th in Musculoskeletal Sciences |
| 2. | 3202 | M.P.Th in Neuro Sciences |
| 3. | 3203 | M.P.Th in Cardio Pulmonary Sciences |
| 4. | 3204 | M.P.Th in Pediatric Neurology |
| 5. | 3205 | M.P.Th in Community Health Sciences |
| 6. | 3206 | M.P.Th in Oncology Physiotherapy |
| 7. | 3207 | M.P.Th in Sports Physiotherapy |
| 8. | 3208 | M.P.Th in Orthopedic Manual Therapy |
| 9. | 3209 | M.P.Th in Obstetrics and Gynecology |
| 10. | 3210 | M.P.Th in Geriatric Physiotherapy |

**SEMESTER WISE SUBJECTS:**

| Sr No | Course Code | Year | Semester | SUBJECT |
|---|---|---|---|---|
| 1 | 3203-11 | M.P.Th - I Year | I | 1. Basic Sciences |
| 2 | 3203-12 | | | 2. Basic Therapeutics |
| | | | | |
| 3 | 3203-21 | M.P.Th - I Year | II | 1. Advanced therapeutics in Specialty Subject |
| 4 | 3203-22 | | | 2. Biostatistics and Research Methodology |
| | | | | |
| 5 | 3203-31 | M.P.Th - II Year | III | 1. General Physiotherapy in Specialty Subject – **Paper 1** |
| 6 | 3203-32 | | | 2. Advances in Specialty Subject – **Paper 1** |
| | | | | |
| 7 | 3203-41 | M.P.Th - II Year | IV | 1. General Physiotherapy in Specialty Subject- **Paper 2** |
| 8 | 3203-42 | | | 2. Advances in Specialty Subject – **Paper 2** |

**Duration**: Master of Physiotherapy shall be a full time programme with duration of TWO academic years divided into FOUR semesters.

**2. Eligibility for admission:**

Applicant for admission to the programme, Master of Physiotherapy should have the Bachelor degree from I.A.P recognized institution or from the recognized university. Selection of candidate is strictly through Krishna PGAIET, which is conducted by Krishna Vishwa Vidyapeeth, (Deemed To Be University), Karad.

**3. ELIGIBILITY FOR APPEARING FOR THE EXAM:**

- The examination for the degree, Master of Physiotherapy shall be conducted twice in a academic year (i.e. Semester Pattern).
- Every student should present his / her dissertation at least three months prior to the fourth semester university examination. The acceptance of the dissertation by the examiners is important for the student's admission for the Written & Clinical (Practical) examination.
- Dissertation should be based on the Specialty Subject. A student who has submitted his / her dissertation once will not be required to submit a fresh dissertation if he / she re- appears for the examination in the same branch on a subsequent occasion, provided that the dissertation has been accepted by the examiners.

- The Degree of Master of Physiotherapy shall not be conferred upon a student unless he / she have passed in the Written, Practical and the Dissertation prescribed for the examination in accordance with the provision.
- The dissertation has been evaluated and approved AND
- Has passed both the headings i.e.

  (With minimum of 50%) in Theory and Practical including Internal Assessment for both.

## 4. GOALS OF THE M.P.TH PROGRAMME:

- The goal of training post- graduate candidate in the respective specialty is to enable him / her to function as a consultant in the respective Physiotherapy specialty. This requires a thorough knowledge of the fundamental and recent advances.
- He/she should be able to make logical decisions regarding patient management & adapt interventions independently.
- During this period he/she will be expected to acquire skills in teaching technology & gain experience in research methodology.
- He/she should practice Physiotherapy in respective specialty and maintain the highest regards for ethical aspect.
- The programme shall focus on clinical reasoning, problem solving and measurement of treatment outcome, emphasizing on the recent diagnostic & therapeutic trends and skill specific Physiotherapy.

## 5. OBJECTIVES OF THE PROGRAMME: -

At the end of the programme the candidate shall be able to:

- Acquire the in-depth knowledge of structure and function of human body related to the respective branch of specialty.
- Acquire the in-depth knowledge of movement dysfunction of human body & principles underlying the use of physiotherapeutic interventions for restoring movement dysfunction towards normalcy.
- Ability to demonstrate critically appraises recent physiotherapeutic and related medical literature from journals & adapts diagnostic & therapeutic procedures based on it.
- Ability to perform skill in Physical & functional diagnosis pertaining to patient under care.
- Ability to make clinical decision & select appropriate outcome measures based on the comprehensive knowledge of theoretical aspects of specialty.
- Expertise in evidence-based skill in the management of movement dysfunction.
- Expertise in health promotion & quality restoration of functional movement pertaining to specialty.
- Planning and implementation of treatment programme adequately and appropriately for all clinical

conditions related to respective specialty in acute and chronic stage, in intensive care, indoor and outdoor institutional care, independent practice, on fields of sports and community and during disaster or natural calamities.

- Proficiency in planning and executing Physiotherapy services and teaching technology skills.
- Develop managerial and administrative skills.
- Develop the knowledge of legislation applicable to compensation for functional disability & appropriate certification.

# POSTGRADUATE PROGRAMME OUTCOMES

## M.P.TH (Master of Physiotherapy)

The course is of two years duration (Divided into 4 Semesters) advanced learning programme in Physiotherapy with CBCS Pattern.

Total Specialties offered: 10 Specialties

1. M.P.Th In Musculoskeletal Sciences
2. M.P.Th In Neuro Sciences
3. M.P.Th In Cardio Pulmonary Sciences
4. M.P.Th In Pediatric Neurology
5. M.P.Th In Community Health Sciences
6. M.P.Th In Oncology Physiotherapy
7. M.P.Th In Sports Physiotherapy
8. M.P.Th In Orthopedic Manual Therapy
9. M.P.Th In Obstetrics And Gynecology
10. M.P.Th In Geriatric Physiotherapy

## M.P.Th - I$^{ST}$ YEAR INCLUDES TWO SEMESTERS NAMELY,

- **I - Semester:** It is common for all the specialties which include the two subjects Basic Sciences & Basic Therapeutics.
- **II - Semester:** Biostatistics and Research Methodology is a common subject for all specialties & Advanced Therapeutics in Specialty Subject is the second one.

## M.P.Th – II$^{ND}$ YEAR INCLUDES TWO SEMESTERS NAMELY,

- **III - Semester:** It includes two subjects which are specialty specific namely, General Physiotherapy in Specialty Subject - Part I & Advances in Specialty Subject - Part I
- **IV - Semester:** It includes two subjects which are specialty specific namely, General Physiotherapy in Specialty Subject- Part II & Advances in Specialty Subject - Part II
- ***Dissertation:** An individual research project preferentially interventional study is mandatory to be completed before appearing for the IV - Semester examination.

**M.P.Th (FIRST YEAR): I - SEMESTER**

1. **BASIC SCIENCES ( 3203-11 )**

**COURSE OBJECTIVES:**

- The student should be able to know the background of Physiotherapy profession, basic ethics and its principles.
- To understand and apply the principles of exercise physiology and nutrition
- To master various assessment tools, test.
- To obtain knowledge of Orthotics & Prosthetics.

**COURSE OUTCOMES:**

At the end of the course the student should be able to apply the basic principles and ethics of Physiotherapy profession, Biomechanics, Patho-mechanics and in depth Kinesiology of human body, all the assessments and clinical tests, diagnosis of various conditions, in depth knowledge of the Orthotics and Bio-engineering.

2. **BASIC THERAPEUTICS (3203-12 )**

**COURSE OBJECTIVES:**

The student should be able to obtain detail knowledge with evidence base of all the Electrotherapeutic modalities, Electro-Diagnostic tests with its application for diagnosis and treatment of Physiotherapy conditions

**COURSE OUTCOMES:**

At the end of the course the student should have in depth knowledge of the Basic Electrotherapeutics, Physical And Functional Diagnosis, EMG / NCV and Radiological investigations.

**M.P.Th (FIRST YEAR): II - SEMESTER**

1. **ADVANCED THERAPEUTICS SPECIALITY SPECIFIC (**3203-21 **)**

**COURSE OBJECTIVES:**

- To interpret various therapeutics used in the treatment of speciality specific conditions.
- To evaluate and generate a diagnosis and differential diagnosis of all related conditions related to speciality and its complications.
- Demonstrate condition specific various skills in the treatment.

**COURSE OUTCOMES:**

At end of the session the student will be able to learn the conditions pertaining to the speciality, the diagnostic test for the same. The students shall learn to make a correct diagnosis and also a differential diagnosis and learn the advanced techniques to treat the same.

## 2. BIOSTATISTICS AND RESEARCH METHODOLOGY (3203-22)

**COURSE OBJECTIVES:**

- To understand the statistical measures used for analysis and interpretation of research data.
- Enhanced training to apply the information on research design and their implementation
- To identify, read, critique research articles and understand and apply the principles of research to perform a guided research.

**COURSE OUTCOMES:**

- At the end of the course the student should have a sound knowledge regarding the basic concept of research, research designs, types of data, sampling methods, interpretation of result, and various statistical tests.
- The student will able to identify appropriate statistical technique reference, use of various software packages for analysis and data management. Interpretation of the results and its application in Physiotherapy.
- The student will be able to learn fundamental of reading and understanding research methods, design and statistics.
- Special emphasis is given to Biostatistics and Research methodology and for completing a scientific research project in the second year as per their elective subject.

**M.P.Th (SECOND YEAR): III - SEMESTER**

## 1. GENERAL PHYSIOTHERAPY IN SPECIALTY SUBJECT – PAPER 1 (3203-31 )

**COURSE OBJECTIVES:**

- Evoke and interpret clinical signs and symptoms of speciality specific disorders & interpret various diagnostic tests, clinical and special investigations used in the diagnosis of the conditions.
- Management of patient, consultation, identifying the problem, derive a provisional diagnosis with differential diagnosis and to chalk out a treatment plan.
- Maintain a precise patient documentation.
- Discuss and develop a specific exercise prescriptions plan with their clinical use, and the sequence of treatment.

**COURSE OUTCOMES:**

- Be able to apply the knowledge for planning and evaluation of teaching methods in Physiotherapy.
- Be able to apply the knowledge on clinical education to spread awareness and guidance to common people about health and disease.
- Understand the pathophysiology of common conditions, their management and its effects on body systems.
- Assess patients' physical function, considering disease and treatment-related impairments.
- Design and implement evidence-based Physiotherapy interventions as per the health issues.

2. **ADVANCES IN SPECIALTY SUBJECT – PAPER 1 (3203-32 )**

**COURSE OBJECTIVES:**

- Understand the application of the information regarding recent advances in Physiotherapy for patient care.
- Application and proper implementation of specific evidences available for assessment and management appropriate to the health conditions.

**COURSE OUTCOMES:**

- The students learn and excel in various aspects of Physiotherapy as per their speciality in theoretical and practical knowledge with a solid platform and tend to train them to be the best in the field.
- To analyse and undertake data for research purpose and its documentation for long life learning in Physiotherapy.
- To develop educational experience for proficiency in profession and promote Preventive and Rehabilitative aspect on the society.

**M.P.Th (SECOND YEAR): IV - SEMESTER**

1. **GENERAL PHYSIOTHERAPY IN SPECIALTY SUBJECT- PAPER 2 (3203-41 )**

**COURSE OBJECTIVES:**

To equip Physiotherapy students with the knowledge and skills necessary to provide problem specific effective rehabilitation and supportive care for patients.

**COURSE OUTCOMES:**

- Recognize and manage potential complications specific to the condition.
- Demonstrate knowledge of protocol specific principles and their application in Physiotherapy practice.
- Communicate effectively with patients, their families, and the multidisciplinary team.
- Critically evaluate current research in the area of rehabilitation to inform clinical decision-making.

2. **ADVANCES IN SPECIALTY SUBJECT – PAPER 2 ( 3203-42 )**

**COURSE OBJECTIVES:**

To provide students with an in-depth understanding of recent developments and emerging trends in the specialty subject, focusing on innovative diagnostic techniques, treatment modalities, and research breakthroughs.

**COURSE OUTCOMES:**

- Analyze cutting-edge research and its potential clinical applications.
- Evaluate novel diagnostic technologies and their impact on early detection and personalized treatment.
- Critically assess emerging advanced and targeted therapies.
- Explain advancements in Prevention strategies and Risk assessment.
- Interpret complex clinical trial data and their implications for patient care.
- Describe innovations and apply knowledge of recent advances to case studies and clinical scenarios.

**END OF PROGRAMME:**

After completion of PG (M.P.Th) Programme, with the above mentioned Programme features the Post-Graduates will be equipped with advanced knowledge in respective specialty related to Technical, Problem Solving and Scientific skills to practice with Evidence Based Physiotherapy Practice through firm decision making process in assessment and treatment, establish advance research hypotheses and undertake research works effectively within the healthcare sectors and community safely and efficiently inculcating effective communication skills.

**TOTAL HOURS: MPTh**

| Semester | Subject | Theory | Theory Credit point | Practical | Practical Credit point | Total Credit point |
|---|---|---|---|---|---|---|
| **I - MPTh** | | | | | | |
| **I - Semester** | Basic Sciences | 100 | 7 | 100 | 7 | 14 |
| | Basic Therapeutics | 100 | 7 | 100 | 7 | 14 |
| **II - Semester** | Advanced Therapeutics in Speciality | 100 | 7 | 150 | 5 | 12 |
| | Biostat & Research | 100 | 7 | | | 7 |
| **II - MPTh** | | | | | | |
| **III - Semester** | General PT in Speciality **Paper - 1** | 200 | 13 | 225 | 8 | 21 |
| | Advances in Speciality **Paper - 1** | 200 | 13 | 250 | 8 | 21 |
| **IV - Semester** | General PT in Speciality **Paper - 2** | 200 | 13 | 225 | 8 | 21 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Advances in Speciality **Paper - 2** | 200 | 13 | 250 | 8 | 21 |
| | | **1200** | **80** | **1300** | **51** | **131** |
| **Total Hrs: 2500** | | | | **Total Credit point: 131** | | |

## EXAMINATION SCHEME:

| | **Theory** | | **Practical** | **IA** | |
|---|---|---|---|---|---|
| | | | | **Theory** | **Practical** |
| **Sem. I** | Basic Sciences (100 Marks) | Basic Therapeutics (100 Marks) | - | 50 marks x 2 Subjects | - |
| **Sem. II** | Advanced Therapeutics in Speciality (100 Marks) | Biostatistics & Research Methodology (100 Marks) | Advanced Therapeutics in Speciality (250 Marks) | 50 marks x 2 Subjects | 50 Marks |
| **Sem. III** | General Physiotherapy in Speciality **Paper – 1** (100 Marks) | Advances in Speciality **Paper – 1** (100 Marks) | - | 50 marks x 2 Subjects | |
| **Sem. IV** | General Physiotherapy in Speciality **Paper – 2** (100 Marks) | Advances in Speciality **Paper – 2** (100 Marks) | Specialty Practical (300 Marks) | 50 marks x 2 Subjects | 50 Marks |
| **Total: 1850 marks** | | | | | |

## EXAMINATION PATTERN:

**THEORY: (ALL SEMESTERS)**

Q1. 10 BAQ (All compulsory) 10 x 5 =50 marks
Q2. 2 LAQ (All compulsory) 2 x 25 = 50 marks
**Total: 100 marks**

***** INTERNAL ASSESSMENT: Out of 50 MARKS for each Subject**

## PRACTICAL: (II & IV SEMESTER)

**SEMESTER II PATTERN**

1. Long Case (Specialty) — 100 marks
2. Short Case 1. (Assessment) — 50 marks
3. Short Case 2. (Management) — 50 marks
4. Spots — 50 marks

**Total: 250 marks + IA: 50 marks = 300 Marks**

**SEMESTER IV PATTERN**

1. Long Case (Specialty) — 100 marks
2. Short Case (Assessment) — 50 marks
3. Short Case (Management) — 50 marks
4. Dissertation Presentation — 50 marks
5. Microteaching — 50 marks

**Total: 300 marks + IA: 50 marks = 350 Marks**

**MPTh - I: SEMESTER: I**

**COURSE: MPTh in CARDIO-PULMONARY SCIENCES**

**SUBJECT: BASIC SCIENCES**

| Subject | Theory | Credit | Practical | Credit | Total Credits |
|---|---|---|---|---|---|
| Basic Sciences | 100 | 7 | 100 | 3 | 10 |

| Sr. No | Content | Teaching Hours (200 Hrs.) | | MK | DK | NK |
|---|---|---|---|---|---|---|
| | | Didactic (100 Hrs.) | Practical (100 Hrs.) | | | |
| 1. | **PRINCIPLES AND ETHICS:**<br>a. Theoretical background of Physiotherapy profession. | 5 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 | 15 hrs | MK | | |
| | b. Energy transfer. | | | | | |
| | c. Systemic adaptation during exercise. | | | | | |
| | d. Physical performance. | | | | | |
| | e. Factors affecting physical | | | | | |

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|---|---|---|---|---|---|---|
| | performance. | | | | | |
| | f. Fatigue and lactate. | | | | | |
| | g. Training. | | | | | |
| | h. Fitness and testing. | | | | | |
| | i. Obesity. | | | | | |
| | j. Diabetes. | | | | | |
| | k. Applied exercise physiology. | | | | | |
| 3. | PATHOMECHANICS AND CLINICAL KINESIOLOGY: Review of mechanical principles and applied biomechanics of human body. | 10 hrs | 5 hrs | MK | | |
| 4. | Review of various types of exercises, principles and its applications for joint mobility, muscle re-education, strengthening and endurance training. | 15 Hrs | 5 Hrs | MK | | |
| 5. | Posture, analysis of normal and abnormal posture, posture training. | 5 hrs | 10 hrs | | DK | |
| 6. | Gait, analysis of normal and abnormal gait, gait training. | 5 hrs | 15 hrs | | | NK |
| 7. | ADL, assessment and training of ADL. | 5 hrs | 10 hrs | | DK | |
| 8. | Clinical assessment, clinical tests and diagnosis of:<br>• Musculoskeletal conditions<br>• Manual Therapy clinical reasoning<br>• Sports conditions<br>• Neurological conditions<br>• Cardio-pulmonary conditions<br>• Obstetrics and Gynecology conditions<br>• Pediatric conditions<br>• Geriatric conditions<br>• Oncology conditions<br>• Community Health conditions | 10 hrs | 15 hrs | MK | | |
| 9. | Measuring tools in therapeutics: Goniometry, accelerometer, pressure transducers, force plates, spondylometer, Body composition, | 5 hrs | 10 hrs | MK | | |

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|---|---|---|---|---|---|---|
| | anthropometric measurements, etc. | | | | | |
| 10. | ORTHOTICS, PROSTHETICS & BIOENGINEERING: | 25 hrs | 15 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. | | | | | |

**BASIC SCIENCES - RECOMMENDED BOOKS:**


1. Ross and Wilson Anatomy and Physiology in Health and Fitness – Kathleen. J, Churchill Livingstone.
2. Samson Wright's Applied Physiology – Neil and Joel, Oxford press.
3. Principles of Anatomy – Harper Collins College Publications
4. Anatomy and Physiology for Physiotherapists – Mottram, Moffat, Blackwell Scientific
5. Atlas of Anatomy – Tank Patrick, Lippincot Williams
6. Surface and Radiological Anatomy – Halim A, CBS


**REFERENCE BOOKS:**


1. Clinical Kinesiology for the Physical therapist Assistants – Lippert L, Jaypee.
2. Brunnstrom's Clinical Kinesiology – Letimkuni W, Jaypee.
3. Clinical Kinesiology – Laura Weiss, Jaypee.
4. Joint Structure & Function – Levangie P, Norkin C, Jaypee.
5. Basic Biomechanics of the musculoskeletal system – Nordin M, Lippincot Williams.
6. Biomechanical Basis of Movement – Hamill J & Krutzen K M, Lippincot Williams.
7. Measurements of Joint Motion – Norkin C, F. A. Davis.
8. Principles of Mechanics & Biomechanics – Bell, Frank, Stanley Thornes Pvt. Ltd.
9. Basic Biomechanics – Hall, Susan J, McGraw hill.
10. Kinesiology – Oatis, Carol A, Lippincot Williams.
11. Applied Kinesiology – Robert Frost, North Atlantic Books.
12. Biomechanics of Spine – White and Punjabi, Lippincot Williams


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**MPTh - I: SEMESTER: I**

**COURSE: MPTh IN CARDIO-PULMONARY SCIENCES**

**SUBJECT: BASIC THERAPEUTICS**

| Subject | Theory | Credit | Practical | Credit | Total Credits |
|---|---|---|---|---|---|
| Basic Therapeutics | 100 | 7 | 100 | 3 | 10 |

| Sr. No | Content | Teaching Hours (200 Hrs.) | | MK | DK | NK |
|---|---|---|---|---|---|---|
| | | Didactic (100Hrs) | Practical (100Hrs) | | | |
| 1. | **Basic Electrotherapeutics:** 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. Electric stimulation. | | | | | |
| | 8. D i - 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. Phonophorosis. | | | | | |
| | 21. Shock Wave Therapy | | | | | |
| 3. | Pain and pain modulation. | 5 hrs | 5 hrs | | DK | |

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|---|---|---|---|---|---|---|
| 4. | Conventional electro diagnosis. | 5 hrs | 5 hrs | MK | | |
| | 1) FG Test. | | | | | |
| | 2) SD Curve. | | | | | |
| 5. | Electrocardiogram. | 10 hrs | 10 hrs | | DK | |
| 6. | Echocardiography. | 10 hrs | 10 hrs | | | NK |
| 7. | Physical & functional diagnosis. | 25 hrs | 25 hrs | MK | | |
| | 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. Physical fitness assessment:<br>• Cardiac efficiency tests and spirometry<br>• Fitness test for sport | | | | | |
| | 5. Electro diagnostics-EMG/NCV<br>**A. Electromyography (EMG)**<br>Electro-diagnosis, clinical and kinesiological electromyography and evoked potential studies.<br>1. Instrumentation.<br>2. Types of electrodes.<br>3. Cathode ray oscilloscope digital processing.<br>4. Electrical safety.<br>5. Artifacts.<br>6. Normal and abnormal motor action potential.<br>7. EMG Examination.<br>a. Muscle at rest.<br>b. Insertional activity.<br>c. Minimum effort.<br>d. Maximum effort.<br>8. Motor unit's potential in disease.<br>• Motor neuron disease.<br>• Hereditary motor neuron disease.<br>• Poliomyelitis. | | | | | |

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|---|---|---|---|---|---|---|
| | • Muscular dystrophy.<br>• Inflammatory myopathies.<br>• Congenital myopathies<br>• Myotonia.<br>• Metabolic myopathies.<br>9) Quantitative methods in EMG. | | | | | |
| | **B. Nerve conduction studies (NCV):**<br>I. Motor and sensory conduction.<br>II. Physiology of nerve conduction.<br>III. General factors affecting nerve conduction.<br>IV. Nerve stimulation.<br>V. H wave.<br>VI. F wave.<br>VII. Entrapment syndromes.<br>a) Carpel tunnel syndrome.<br>b) EMG studies in Myasthenia gravis.<br>c) EMG studies in Decremental studies Lambert myasthenia syndrome.<br>d) Electro diagnosis in Radiculopathy.<br>e) Peripheral neuropathies.<br>- Nerve conduction changes in peripheral neuropathy.<br>- EMG changes in peripheral neuropathy. | | | | | |
| 8 | Radiological investigation.<br>1) X – ray.<br>2) CT / MRI Scan.<br>3) Blood investigation (routine) | 20 hrs | 20 hrs | MK | | |

**BASIC THERAPEUTICS - RECOMMENDED BOOKS:**


1. Exercise Physiology, energy, nutrition and human performance – McArdle, Katch &Katch, Lippincot Williams.
2. Illustrated principles of exercise physiology – Axen. K, Kathleen. V, Prentice Hall.
3. Essentials of Exercise Physiology – Shaver Larry. G, Surjeet Publications.
4. Physiology of Sports and Exercise – Majumdar. P, New Central Book.
5. Exercise and the Heart – Froliecher, Victor. F, Elsevier.
6. Textbook of Work Physiology – Astrand and Rodahl, McGraw Hill.
7. Kinanthropometry and Exercise Physiology Laboratory manual tests, procedures anddata-Erston, Reilly, F & FN Spon.


**REFERENCE BOOKS:**


1. Communication Skills in Clinical Practice – Sethuraman K. R.
2. Handbook of Educational Technology – Elington Henry, Kogan Page.
3. Physical Therapy Administration & Management – Hickok, Robert J, Williams &Wilkins.
4. Clinical Decision making in Rehabilitation – Basmajian, John V, Churchill Livingstone.
5. Handbook of Clinical Teaching – Watts Nancy, Churchill Livingstone.
6. Physical Therapy Ethics by Gabard and Martin (Sep 2, 2010)
7. Management in Physical Therapy Practices by Catherine G. Page (Sep 23, 2009)
8. Physical Rehabilitation: Evidence-Based Examination, Evaluation, and Intervention byMichelle H. Cameron and Linda Monroe (Apr 5, 2007)
9. Physical Therapy Management by Ronald W. Scott and Christopher L Petrosino (Sep 1,2007)

**MPTh – I: SEMESTER: II**

**COURSE: MPTh IN CARDIO-PULMONARY SCIENCES**

**SUBJECT: BIOSTATISTICS AND RESEARCH METHODOLOGY**

| Sr No. | Contents | TEACHINGHOURS Theory (100 Hrs) | Must Know | Desirable to Know | Nice to Know |
|---|---|---|---|---|---|
| 1 | **Research methodology:**<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 | **Biostatistics:**<br>Descriptive and inferential statistics<br>II. Types of data qualitative andquantitative<br>III. Frequency distributions<br>IV. Describing data with graphs<br>V. Describing data with averages modemedian mean<br>VI. Describing variability variancestandard deviation etc<br>VII. Normal distributions<br>VIII. Interpretations of result | 40 hrs | MK | | |

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

**TEXT BOOKS FOR RESEARCH METHODOLOGY AND BIOSTATISTICS**:

1. Research Methodology .Methods and Techniques C.R. Kothari New Age International Publishers.2nd edition 2008
2. Rehabilitation Research: Principles And Applications By Elizabeth Domholdt(Elsevier Science Health Science Div, 2004)
3. Research Methods for clinical therapists by Hicks Carolyne, Churchill
4. Foundations of clinical Research by Portney & Watkins,Davis
5. Research methodology by Kothari New Age international
6. Research Methodology for health professionals by Goyal,Jaypee
7. Methods in Biostatistics By Mahajan,B.K Jaypee
8. Principles & practice of Biostatistics By Dixit ,J.V Bhanot

**TEACHING TECHNOLOGY:**

1. Public Power And Administration – Wilenski, Hale And Iremonger, 1986
2. Physical Therapy Administration And Management – Hickik Robert J
3. A Practical Guide for Medical Teachers : John A Dent& Ronald M Harden: Elsevier Health Sciences: 2009
4. International Handbook of Medical Education : Abdul W Sajid, Christie H McGuire et al: Greenwood Press 1994
5. Principles Of Medical Education by. Tejinder Singh, Piyush Gupta, DaljitSingh.year: 2009. Edition: 3rd edition Publisher: Jaypee brothers.

**MPTh – I: SEMESTER: II**

**COURSE: MPTh IN CARDIO-PULMONARY SCIENCES**

**SUBJECT: ADVANCED THERAPEUTICS IN CARDIO PULMONARY SCIENCES**

| Sr no. | Topic | Teaching hours | | Must know | Desire to know | Nice to know |
|---|---|---|---|---|---|---|
| | | Didactic (100 Hrs) | Practical's (150 Hrs) | | | |
| 1. | Advanced Cardiac diagnostics | 20 hrs | 20 hrs | MK | | |
| 2. | Advanced Respiratory diagnostics | 20 hrs | 20 hrs | MK | | |
| 3. | Monitoring and Managerial skills in all ICU | 15 hrs | 15 hrs | MK | | |
| 4. | Advanced Physiotherapy approaches for Respiratory problems | 15 hrs | 15 hrs | MK | | |
| 5. | Advanced Physiotherapy approaches for Cardio vascular problems | 20 hrs | 20 hrs | MK | | |
| 6. | Recent advances in cardiopulmonary physiotherapy & Principles of chest physiotherapy: | 10 hrs | 10 hrs | MK | | |
| | a) Advancement such as Ventilators, Respirators & its uses. | | | | | |
| | I. Cardio-pulmonary resuscitation. | | | | | |
| | II. Intensive care management<br>a) MICU.<br>b) RICU.<br>c) ICU.<br>d) CCU.<br>e) Neonatal ICU.<br>f) Post op management of transplantation surgeries | | | | | |
| | b) Investigations | | | | | |

**ADVANCED THERAPEUTICS - 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,

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

15) Cardio Pulmonary Physical Therapy By Scott Irwin

## M.P.Th II: SEMIESTER III

## MPT IN CARDIO PULMONARY SCIENCES

## GENERAL PHYSIOTHERAPY IN CARDIO-PULMONARY SCIENCES

## (PAPER – I)

| Sr.no | Content | Teaching hrs. | | Must know | Desirable to know | Nice to know |
|---|---|---|---|---|---|---|
| | | Didactic (200Hrs) | Practical (225Hrs) | | | |
| I | 1. Development of cardio-vascular, pulmonary system, difference between adult and pediatric system<br>2.Anatomy, physiology of cardiovascular, pulmonary systems<br>3. Physiology of micro circulation and oedema<br>4. Applied anatomy of respiratory muscle<br>5. Respiratory muscle physiology<br>6. Breathing mechanism in normal and diseased<br>7. Applied anatomy of cardio-vascular and pulmonary system<br>8. Applied physiology of cardio-vascular and pulmonary system | 20 | 20 | MK | | |
| II | 1. Clinical evaluation and assessment of cardiovascular<br>and respiratory dysfunction<br>2. Skills of Physio therapeutic function, measurement and<br>documentation<br>3. SOAP format<br>4. History taking<br>5. Cardinal signs<br>6. Inspection, Palpation<br>7. Percussion<br>8. Auscultation relevant to cardiopulmonary sciences<br><br>Basic principles and concepts of | 20 | 25 | MK | | |

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|---|---|---|---|---|---|---|
| | 1. Pulmonary Function tests<br>2. Arterial blood gas analysis<br>3. Imaging of the heart<br>4. Electrocardiogram identification<br>5. Multisystem assessment and laboratory investigations<br>6. Outcome measures: Functional performance- 2MWT, 3MWT, 6MWT, 12MWT, modified shuttle test, step test, Quality of life measures | | | | | |
| III | Review of cardiopulmonary disease: Medical and surgical management<br>1. COPD<br>2. Restrictive Lung Disorder<br>3. Supportive lung disease<br>4. Occupational lung disease<br>5. Chest wall deformities<br>6. Lung cancer<br>7. Sleep apnoea<br>8. Pleural diseases<br>9. Neuromuscular and other diseases of chest wall | 20 | 20 | MK | | |
| IV | Review of cardiovascular conditions- medical and surgical management<br>1. Congenital heart diseases<br>2. Acquired heart disease<br>3. Coronary artery disease<br>4. Systemic Hypertension<br>5. Diseases of myocardium<br>6. Pericardial disease<br>7. Tumors of the heart<br>8. Peripheral Vascular Disorders | 20 | 20 | MK | | |
| V | 1. Normal and abnormal responses of cardiovascular and pulmonary system during rest and exercise.<br>2. Exercise physiology compared with abnormal exercise physiology<br>3. Age related changes in cardiovascular and pulmonary system<br>4. Oxygen transport system<br>5. Cardiovascular and pulmonary manifestations of systemic conditions | 20 | 20 | | | NK |
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| VI | 1. Maximizing outcomes: Relating interventions to an<br>individual's needs<br>2. Mobilization and exercise: Physiological basis for assessment, evaluation and training<br>3. Body positioning and various systemic changes<br>4. Airway Pharmacology<br><br>Airway clearance techniques- Principles, Indications and Contraindications of chest physiotherapy techniques<br>1. Active cycle of breathing technique<br>2. Postural drainage<br>3. Percussion<br>4. Vibration and shaking<br>5. Manual hyperinflation<br>6. Autogenic drainage<br>7. Positive expiratory pressure<br>8. High -frequency chest wall oscillation<br>9. Intrapulmonary Percussive ventilation<br>10. Acoustic airway clearance<br>11.Suctioning | 20 | 30 | MK | | |
| VII | Facilitating airway clearance with coughing techniques<br>1. Cough pump<br>2. Complications<br>3. Cough evaluation<br>4. Assisted coughing techniques<br><br>Facilitating ventilator patterns and breathing strategies<br>1. Positioning concerns<br>2. Breathing exercises<br>3. Teaching breathing control to patients with primary and<br>secondary pulmonary dysfunction<br>4. Diaphragm and posture<br>5. Repatterning technique<br>6. Mobilizing the thorax<br>7. Facilitating accessory muscles in ventilation<br>Physiotherapy to increase lung volume<br>1. Lung expansion therapy | 20 | 25 | MK | | |

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| | 2. Incentive spirometry<br>3. Continuous positive airway pressure<br>4. Intermittent positive pressure breathing<br><br>Physiotherapy to decrease the work of breathing<br>1. Handling breathlessness<br>2. Relaxed positions, relaxation<br>3. Breathing reeducation<br>4. Exercise and pacing<br>5. Non invasive ventilation<br><br>Adjuncts to chest physiotherapy<br>1. Aerosol therapy<br>2. Nebulization<br>3. Humidification | | | | | |
| VIII | 1. Respiratory muscle fatigue<br>2. Respiratory muscle training- Assessment, training methods in health and disease<br>3. Cardiovascular and pulmonary physical therapy- Acute medical and surgical conditions<br>4. Cardiovascular and pulmonary physical therapy chronic medical and surgical conditions | 20 | 20 | | DK | |
| IX | Pulmonary Rehabilitation<br>1. Goals and outcome<br>2. Structure<br>3. Patient evaluation procedures<br>4. Treatment intervention<br>5. Physical conditioning<br>6. VO2 Max Assessment<br>7. Skeletal muscle dysfunction evaluation<br>8. Effects of Pulmonary Rehabilitation- long term and short term effects on respiratory system<br><br>Cardiac rehabilitation- phases,<br>1. Standards for cardiac rehabilitation<br>2. Inpatient programs | 20 | 25 | MK | | |

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| | 3. Hospital and home based programs<br>4. Community based programs<br>5. Exercise prescription<br>6. Patient education<br>7. Beneficial effects of aerobic exercise for patients with CAD | | | | | |
| X | Cardiovascular and pulmonary physical therapy- Special<br>cases<br>1. Infants and children<br>2. Hyperventilation syndrome<br>3. Elderly people with cardio-respiratory disease<br>4. Palliative respiratory physiotherapy<br>5. PVD Rehabilitation<br>6. Chest trauma-Management<br>7. The transplant patient<br>8. Body mechanics: positioning and moving patients | 10 | 10 | | DK | |
| XII | Review of Covid 19 rehabilitation in detail<br>1. Goals<br>2. Covid 19 rehabilitation team<br>3. Rationale for cardiac rehabilitation<br>4. Indications and precautions<br>5. Contra indications and complications<br>6. Role of physiotherapy<br>7. Assessment protocols<br>8. Post Covid complications – management<br>9. Managerial skills | 10 | 10 | MK | | |

# M.P.Th II: SEMIESTER III
# MPT IN CARDIO PULMONARY SCIENCES
# ADVANCES IN CARDIO-PULMONARY SCIENCES
# (PAPER – I)

| Sr.no | Content | Teaching hrs | | Must know | Desirabl -le to know | Nice to know |
|---|---|---|---|---|---|---|
| | | Didactic (200hrs) | Practical (250hrs) | | | |
| **CARDIO PULMONARY THERAPEUTICS** | | | | | | |
| I | 1. Assessment of cardio-vascular, pulmonary system<br>History, Vital signs, Inspection, Palpation, Percussion<br>and Auscultation.<br>2. Investigations- Chest X-ray, Pulmonary Function Test, Arterial Blood gas analysis, Electrocardiogram,<br>Multi system assessment and laboratory investigations, ECHO<br>3. Demonstration of various Outcome measures: Functional performance- 2MWT, 3MWT, 6MWT,<br>12MWT, modified shuttle test, step test, Quality of life<br>measures<br>4. Goal setting-Short term and long term | 25 | 50 | MK | | |
| II | 1. Explain Breathing exercises, Relaxed positions, Teaching breathing control to patients with primary and secondary pulmonary dysfunction, Re-patterning<br>technique, Facilitation ventilatory patterns and demonstrate-Positioning concerns<br>2. Mobilization of thorax<br>3. Demonstrate techniques to increase | 25 | 50 | MK | | |

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| III | Demonstration of Airway clearance techniques<br>1. Active cycle of breathing technique<br>2. FET<br>3. Assisted coughing technique<br>4. Postural drainage<br>5. Percussion<br>6. Vibration and shaking<br>7. Manual hyperinflation<br>8. Autogenic drainage<br>9. Positive expiratory pressure<br>10. High -frequency chest wall oscillation<br>11. Intrapulmonary Percussive ventilation<br>12. Incentive spirometry<br>13. Flutter<br>14. Acapella<br>15. RC-cornet<br><br>Demonstration of Various aerosol therapy and Nebulization methods | 50 | 50 | MK | | |
| IV | 1. Pulmonary Rehabilitation- Assessment, and exercise prescription and physiotherapy management of various pulmonary conditions | 25 | 25 | MK | | |
| V | 1.Cardiac rehabilitation- Assessment, and exercise prescription and physiotherapy management of various cardiac conditions<br>2. Assessment and management of peripheral vascular system | 25 | 25 | MK | | |
| VI | Post Covid 19 rehabilitation - Assessment, and exercise prescription and physiotherapy management of Covid 19 patients<br>2. Assessment and management of post Covid complications | 25 | 25 | MK | | |

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| VII | 1.Organ transplant rehabilitation-Assessment, and exercise prescription and physiotherapy management of various<br>cardiac conditions<br>2. Assessment and management of various organ transplant | 25 | 25 | | | NK |

**M.P.Th II: SEMIESTER IV**

**MPT IN CARDIO PULMONARY SCIENCES**

**GENERAL PHYSIOTHERAPY IN CARDIO-PULMONARY SCIENCES**

**(PAPER – 2)**

| Sr.no | Content | Teaching hrs | | MK | DK | NK |
|---|---|---|---|---|---|---|
| | | THEORY(200) | PRACTICALS(225) | | | |
| ICU MANAGEMENT | | | | | | |
| I | Comprehensive management of individuals in the intensive care unit<br>1. Specialized expertise of ICU physiotherapist<br>2. Goals and general basis of management<br>3. Treatment prescription in the ICU<br>4. Non clinical aspects of the management of the patient in the ICU<br>5. End-of – life issues<br><br>Emergency cardiovascular Life support<br>1. Causes and prevention of sudden death<br>2. Basic Life Support<br>3. Advanced Cardiovascular Life Support | 30 | 30 | MK | | |
| II | Airway management<br>1. Suctioning<br>2. Establishing an artificial airway<br>3. Airway maintenance<br>4. Extubation or decannulation<br>5. Bronchoscopy<br><br>Medical gas therapy<br>1. Oxygen therapy<br>2. Hyperbaric Oxygen therapy<br>3. Other Medical gas therapies | 30 | 30 | | | NK |

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| III | Monitoring the patient in ICU<br>1. Principles of monitoring<br>2. Patho physiology and monitoring<br>3. Monitoring of various systems<br>4. Holter monitoring<br>5. Trouble shooting<br><br>Mechanical ventilators<br>1. Physiology of ventilator support<br>2. Initiating and adjusting invasive ventilator support<br>3. Modes of ventilation<br>4. Discontinuing ventilator support<br><br>Non invasive ventilation<br>1. History and development<br>2. Indications<br>3. Selecting appropriate patients<br>4. Equipments used<br>5. Management and complications | 40 | 40 | MK | | |
| IV | Intensive care management of individuals with primary cardiovascular and pulmonary dysfunction<br>1. Cardiovascular and pulmonary failure<br>2. Obstructive lung disease<br>3. Status asthmaticus<br>4. Restrictive lung disease<br>5. Myocardial Infarction<br>6. Open heart surgery | 35 | 40 | MK | | |
| V | Intensive care management of individuals with secondary cardiovascular and pulmonary dysfunction<br>1. Neuromuscular conditions<br>2. Obesity<br>3. Musculoskeletal trauma<br>4. Head injury<br>5. Spinal cord injury<br>6. Burns<br>7. Organ transplantation | 35 | 40 | MK | | |

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| VI | Ethics of caring<br>Ethical principles followed in ICU<br>Ethical and legal responsibilities of Physiotherapist :<br>End of life issues<br>CPR responsibilities<br>Futile care<br>Medical documentation<br>Palliative care | 30 | 35 | | NK | |

**RECOMMENDED BOOKS**


1. Cardio pulmonary physical therapy by Scott Irwin
2. Cardiovascular and Pulmonary Physical Therapy- Evidence to Practice- Donna Frownfelter, PT,
3. Webber B and Pryor J (2008) Physiotherapy for respiratory and cardiac
4. problems. Churchill Livingstone, London. ISBN 0-443-04471-6
5. Cardiopulmonary Rehabilitation - Barbara.
6. Egan's Fundamentals of Respiratory care by Robert Wilkins
7. PT For RT & Cardiac Problems By Weber
8. Physiotherapy In Respiratory Care By Hough A Jaypee Publishers
9. Cardiovascular And Pulmonary Physical Therapy By Felter D.F. Mosby
10. Multidisciplinary Approach To Breathing Disorder By Leon
11. Egan's Fundamentals of Respiratory care by Robert Wilkins
12. Essentials of cardiopulmonary physical therapy,4th edition-Ellen Hillegass
13. Clinical Exercise Testing By Jones
14. Pulmonary Rehabilitation. The Obstructive And Paralytic Conditions By John
15. Chest Physiotherapy in Intensive Care Unit By Mackenzie,Williams&Wilkins,Baltimore
16. Physical Therapy for Children by Campbell Suzann K,W.B Saunders,Philadelphia


**JOURNAL**


1. American physical therapy Association journal Journal of chartered society of physiotherapy
2. Physiotherapy (Canada).
3. American Heart Association-Chest
4. Indian Journal of Critical Care Medicine
5. Respiratory care–European Journal
6. Journal of sports physical therapy
7. Journal of chartered society of physiotherapy
8. Archives of environmental health

**M.P.Th II: SEMIESTER IV**

**MPT IN CARDIO PULMONARY SCIENCES**

**ADVANCES IN CARDIO-PULMONARY SCIENCES**

**(PAPER – 2)**

| Sr.no | Content | Teaching hrs | | MK | DK | NK |
|---|---|---|---|---|---|---|
| | | HEORY(200) | RACTICALS(250) | | | |
| **ICU MANAGEMENT** | | | | | | |
| I | 1. Assessment of patients in the intensive care unit,<br>ventilator dependent patients<br>2. Monitoring systems<br>3. Goal setting-Short term and long term<br>4. Physiotherapy management technique in ICU | 25 | 30 | MK | | |
| II | 1. Basic and advanced artificial airways<br>2. Mechanical ventilators assessment and demonstration-Initiating and adjusting invasive ventilator support-Modes of ventilation-Weaning from ventilator support<br>3. Demonstration of Oxygen therapy Unit<br>4. Demonstration of aerosol therapy, humidification, Suctioning<br>5. Intermittent Positive Pressure Breathing<br>6. Intercostal drainage<br>7. Manual hyperinflation | 25 | 30 | | DK | |
| III | 1. Chest physiotherapy techniques, Breathing strategies,<br>Airway clearance used in Primary and secondary<br>cardiopulmonary conditions<br>2. Early mobilization | 25 | 25 | MK | | |

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| IV | 1. Assessment and physiotherapy management of patients<br>pulmonary, cardiac and general surgery<br>2. Demonstrate Emergency cardiovascular Life support<br>Basic Life Support<br>Advanced Cardiovascular Life Support | 25 | 25 | MK | | |
| V | 1.Fitness-assessment and test, interpretation<br>2.Fitness training -<br>Training principles - FITT, overload, specificity,<br>progression- calculation<br><br>3.Demonstrate various Training<br>methods-aerobic/anaerobic,<br>continuous/ interval, low/high<br>intensity, plyometrics, circuit training,<br>fartlek training<br>Selection, application and progression in each method<br>of training | 20 | 40 | | DK | |
| **FITNESS AND HEALTH PROMOTION** | | | | | | |
| I | 1. Normal and abnormal responses of cardiovascular and<br>pulmonary system during rest and exercise.<br>2. Exercise physiology compared with abnormal exercise<br>physiology<br>3. Patient evaluation, low level exercise testing, maximal<br>exercise testing<br>4. Programme planning and implementation – principles | 20 | 25 | | DK | |
| II | PRINCIPLES AND METHODS OF FITNESS TESTING<br>1 Testing principles in different population-trained and untrained<br>2 Various testing methods-Reliability, validity, cross cultural variations<br>3 Interpretation of tests and prescription considerations | 20 | 25 | | | NK |

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| III | PRINCIPLES AND METHODS OF FITNESS TRAINING<br>Exercise prescription for health promotion<br>1. Training principles- FITT, overload, specificity, progression<br>2. Training methods-aerobic/anaerobic, continuous/ interval, low/high intensity, plyometrics, circuit training, fartlek training<br>3. Selection, application and progression in each method of training | 20 | 25 | MK | | |
| IV | FITNESS TESTING & TRAINING IN SPECIAL POPULATION<br>Heart failure<br>1. Pacemaker implantation<br>2. Diabetes mellitus<br>3. Obesity<br>4. IHD<br>5. COPD<br>6. HTN | 20 | 25 | MK | | |

**REFERENCES**

1. Cardio pulmonary physical therapy by Scott Irwin
2. Cardiovascular and Pulmonary Physical Therapy- Evidence to Practice Donna Frownfelter, PT,
3. Webber B and Pryor J (2008) Physiotherapy for respiratory and cardiac problems. Churchill Livingstone, London. ISBN 0-443-04471-6
4. Chest physiotherapy in the intensive care unit-Colin F. Mackenzie, P. Cristina Imle
5. Egan's Fundamentals of Respiratory care by Robert Wilkins Cardio pulmonary physical therapy by Scott Irwin
6.Cardiovascular and Pulmonary Physical Therapy- Evidence to Practice- Donna Frownfelter, PT,
7.Webber B and Pryor J (2008) Physiotherapy for respiratory and cardiac problems. Churchill Livingstone, London. ISBN 0-443-04471-6
8.Cardiopulmonary Rehabilitation - Barbara.
9.Egan's Fundamentals of Respiratory care by Robert Wilkins
10.Exercise Physiology and Physical Education in Athletics - Fox and Mathews
11. Exercise testing and exercise prescription ,David C.Nieman
12. Food for sport - N.J.Smith
13. Encyclopedia `of ` sports` Sciences` and` Medicine"

**JOURNALS**

1. Physical therapy (CANADA)
2. American physical therapy Association journal
3. Journal of Chartered society of physiotherapists.