

**DATTA MEGHE INSTITUTE OF MEDICAL SCIENCES**

**(DEEMED TO BE UNIVERSITY)**

**RAVI NAIR PHYSIOTHERAPY COLLEGE,**

**SAWANGI (MEGHE), WARDHA**

**AIPHDCET ENTRANCE SYLLABUS**

**FACULTY OF PHYSIOTHERAPY**

## 1. Preamble

Competency in speciality, keeping abreast of contemporary advances and development of one's discipline, scientific inquisitiveness, know how regarding basic principles of research methodology, epidemiology and modes of consulting library, basic skills in teaching Physiotherapy students should be the basic parameters to judge and evaluate postgraduate training and teaching. Ability to address therapeutic, rehabilitative, preventive and promotive dimensions of one's speciality, sensitiveness and responsiveness to health needs of community and national health programmes, demonstration of empathy and human approach to patient in accordance with social norms and expectation should form the basic structure on which postgraduate training should be based.

## 2. Goals

At the end of postgraduate training the student should be able to:-

- ❖ Practice his speciality ethically.
- ❖ Demonstrate sufficient understanding of basic sciences related to his speciality.
- ❖ Diagnose and manage majority of conditions in his specialty (Clinically and with the help of relevant investigations)
- ❖ Plan and advice measures for the prevention and rehabilitation of patient pertaining to his speciality.
- ❖ Play the assigned role in the implementation of National Health programs.
- ❖ Demonstrate competence in basic concepts or research methodology.
- ❖ Develop good teaching skills.

## 3. Learning objectives

- Theoretical Knowledge: - A student should have fair knowledge in the basic sciences as applied to his speciality. He /She should acquire in depth knowledge of his subject including recent advances. He should be fully conversant with the bedside procedures and having knowledge of latest diagnostics and therapeutics available.
- Clinical/ Practical skills: - A student should be expert in good history taking, physical examination, screening for Physiotherapy treatment, ICF application and applying the advanced Physiotherapy treatment techniques.
- Acquire the in-depth knowledge of structure & function of human body related to the respective branch of specialty.
- Acquire the in-depth knowledge of movement dysfunction of human body, cause thereof, & of principles underlying the use of physiotherapeutic interventions, for restoring movement dysfunction towards normalcy.

- Demonstrate ability to critically appraise recent physiotherapeutic & related medical literature from journals & adopt diagnostic & therapeutic procedures based on it.
- Demonstrate skill in physical & functional diagnosis pertaining to patient under care.
- Demonstrate ability to make clinical decision & select appropriate outcome measures based on the comprehensive knowledge of theoretical aspects of specialty.
- Demonstrate an expertise in evidence-based skill in the management of movement dysfunction.
- Demonstrate an expertise in health promotion & quality restoration of functional movement pertaining to specialty.
- Planning & implementation of treatment programme adequately and appropriately for all clinical conditions relate to respective specialty in acute & chronic stage, in intensive care, indoor & outdoor institutional care, independent practice, on fields of sports & community & during disaster or natural calamities.
- Demonstrate proficiency in planning & executing physiotherapy services & teaching technology skills.
- Demonstrate managerial & administrative skills
- Demonstrate the knowledge of legislation applicable to compensation for functional disability & appropriate certification.
- Able to execute all routine physiotherapeutic procedures with evidence based practice.
- Able to be a prominent member of the multidisciplinary physiotherapy team and treat all the conditions which need physiotherapeutic procedures.
- Able to provide adequate knowledge about the treatment procedures and its benefit.
- Able to transfer knowledge and skills to students as well young professionals.
- Able to perform independent physiotherapy assessment and treatment for patients.
- Able to undertake independent research in the field of physiotherapy.
- Learn multidisciplinary practice skills.
- Able to practice and assess patient independently.

## FACULTY OF PHYSIOTHERAPY

### Syllabus:

### PART I: PHYSIOTHERAPY

| SN                                | Topics  |
|-----------------------------------|---|
| <b>APPLIED PHYSIOTHERAPEUTICS</b> |   |
| 1                                 | Introduction to Exercise Physiology: Body composition, nutrition and caloric balance and performance  |
| 2                                 | Sources of Energy, Energy Transfer and Energy Expenditure at rest and various physical activities.  |
| 3                                 | Physiologic Support system and Physical Activity: Cardio-Pulmonary, Neuromuscular & Hormones.   |
| 4                                 | Responses and Adaptations of various systems to Exercise and training.  |
| 5                                 | Assessment and training for endurance and strength (Anaerobic and aerobic power)  |
| 6                                 | Environmental influence on Performance.   |
| 7                                 | Exercise prescription for health and fitness. Considerations of age and sex in exercise and training.   |
| 8                                 | Fatigue: Assessment and management.   |
| 9                                 | Pathological & Radiological investigations and its interpretation including imaging techniques.   |
| 10                                | ECG and Pulmonary Function test.  |
| 11                                | Anthropometric measurements.  |
| 12                                | A) Physical fitness assessment - Body composition, ETT, Field Test, 6 Minute walk test etc., Flexibility, Muscle strength, endurance, Skills, Testing of agility- balance, co-ordination.<br>B) Effect of aerobic, anaerobic, Isometric, Isotonic and Isokinetic exercises on muscle and cardio-pulmonary function.   |
| 13                                | S-D Curve, EMG, NCV interpretation and Biofeedback.   |
| 14                                | Physical disability evaluation and disability diagnosis.  |
| 15                                | Posture and Gait analysis.  |
| 16                                | Pain (neurobiology, various theories, assessment, modulation and management of pain)  |
| 17                                | Effect of medications on activity performance. <ul style="list-style-type: none"> <li>a) Anti-depressants,</li> <li>b) Narcotics,</li> <li>c) Dopamine (L-dopa, C- dopa)</li> <li>d) Beta Blockers,</li> <li>e) ACE Inhibitors,</li> <li>f) Diuretics,</li> <li>g) Statins.</li> <li>h) Oral Hypoglycemics,</li> <li>i) Other: Brochodilators, Nicotine and Thyroid replacement drugs.</li> <li>j) NSAID &amp; Steroids</li> <li>k) Amphetamines</li> </ul> |
| 18                                | Physiotherapy for health and stress management.   |

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| 19   | CPR, monitoring systems and defibrillators and artificial respirators.  |
| 20   | Physiotherapy modalities, techniques and approaches.  |
| 21   | Aging: Physiological changes and Physiotherapy management.  |
| 22   | Aids and appliances, adaptive functional devices to improve movement dysfunction.   |
| 23   | Physiotherapy in Disaster management.   |
| 24   | Integration of Yoga in Physiotherapy for Health promotion and Dysfunction.  |
| 25   | <b>Aquatic Therapy:</b><br>Definition, Properties of water, Hydrodynamic principles, Physiological changes of immersion, Therapeutic Benefits, Safety, Indications & contraindications, Aquatic therapy vs land., Various concepts in Aquatic therapy   |
| 26   | Clinical decision making in Physiotherapeutics.   |
| <b>MUSCULOSKELETAL PHYSIOTHERAPY</b>                           |   |
| <b>A) Musculo-skeletal Dysfunctions of the Upper Quadrant:</b> |   |
| 27   | Structure, function, Biomechanics & Patho-mechanics of musculoskeletal dysfunctions of the upper quadrant. (Upper Quadrant includes occiput, cervical spine, thoracic spine, shoulder girdle and upper extremities)   |
| 28   | Patho-physiology and clinical features of musculoskeletal dysfunctions of the upper quadrant. (Upper Quadrant includes occiput, cervical spine, thoracic spine, shoulder girdle and upper extremities)  |
| 29   | Assessment & Advances in functional diagnostic procedures of musculoskeletal dysfunctions of the upper quadrant for eg: Special test, Proforma Scales, Questionnaire etc (Upper Quadrant includes occiput, cervical spine, thoracic spine, shoulder girdle and upper extremities)   |
| 30   | Clinical decision making skill & medical and physiotherapy management of all pediatric, adult and geriatric in musculoskeletal dysfunctions of the upper quadrant.  |
| 31   | Surgical procedures related to Traumatic & non-traumatic musculoskeletal conditions of the upper quadrant including recent advances and its pre-operative and post-operative physiotherapy management.  |
| 32   | <b>Manual Therapy techniques:</b> <ul style="list-style-type: none"> <li>• Clinical reasoning in manual therapy</li> <li>• McKenzie's, Maitland's, Cyriax's</li> <li>• Mulligan's, positional release techniques, Taping techniques (Kinesio and McCollel)- peripheral &amp; spinal joint dysfunction, Myofascial release techniques, Muscle energy techniques</li> <li>• Neurodynamics &amp; neural tissue mobilizations</li> <li>• Recent advances</li> </ul> |
| 33   | Assistive Devices used for stability and mobility to enhance function.  |
| 34   | Evidence based practice to formulate effective musculoskeletal assessment and treatment program   |
| 35   | Assessment and management of Integumentary impairments due to musculoskeletal dysfunction in upper quadrant   |
| 36   | Clinical decisions for lower quadrant function in presence of upper quadrant dysfunction.   |
| 37   | <b>Hand Rehabilitation:</b> <ul style="list-style-type: none"> <li>• Soft tissue injuries of hand.</li> </ul>   |

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|                           | <ul style="list-style-type: none"> <li>• Traumatic &amp; non-traumatic conditions affecting hand.</li> <li>• Sensory and motor re-education of hand.</li> <li>• Congenital &amp; acquired deformities of hand.</li> <li>• Prescription of orthotic devices for hand</li> <li>• Recent advances in hand rehabilitation</li> </ul>   |
|                           | <b>B) Musculo-skeletal Dysfunctions of the Lower Quadrant and Sports:</b>  |
| 38                        | Structure, function, Biomechanics & Patho mechanics of musculoskeletal dysfunctions of the lower quadrant. (Lower Quadrant includes lumbar spine, sacrum, pelvis and lower extremities)  |
| 39                        | Patho-physiology and clinical features of musculoskeletal dysfunctions of the lower quadrant.  |
| 40                        | Assessment & Advances in functional diagnostic procedures of musculoskeletal dysfunctions of the lower quadrant for eg: Special test, Proforma Scales, Questionnaire etc.  |
| 41                        | Clinical decision making skill & medical and physiotherapy management of all pediatric, adult and geriatric in musculoskeletal dysfunctions of the lower quadrant.   |
| 42                        | Surgical procedures related to Traumatic & non-traumatic musculoskeletal conditions of the lower quadrant including recent advances and its pre-operative and post-operative physiotherapy management.   |
| 43                        | Advances in the field of Manual Therapy.<br>Clinical reasoning in manual therapy, McKenzie's, Maitland's Cyriax's, Mulligan's mobilization<br>Positional release techniques, Taping techniques – peripheral joints, Myofascial release techniques, Muscle energy techniques, Neurodynamics & neural tissue mobilizations, Recent advances  |
| 44                        | Assistive Devices used for stability and mobility to enhance function.   |
| 45                        | Evidence based practice to formulate effective musculoskeletal assessment and treatment program.   |
| 46                        | Assessment and management of Integumentary impairments due to musculoskeletal dysfunction.   |
| 47                        | Clinical decisions for upper quadrant function in presence of lower quadrant dysfunction.  |
| 48                        | <b>Sports Rehabilitation:</b> <ul style="list-style-type: none"> <li>• Sports philosophy, physiology, psychology &amp; pharmacology</li> <li>• Biomechanics and patho-mechanics of sports</li> <li>• Sports injury- Principles of injury prevention, diagnosis, treatment &amp; rehabilitation.</li> <li>• Sports for special population <ul style="list-style-type: none"> <li>- Disabled population</li> <li>- Elderly population</li> </ul> </li> </ul> |
| 49                        | Gait rehabilitation  |
| <b>NEUROPHYSIOTHERAPY</b> |  |
|                           | <b>A) Paediatric Neurophysiotherapy:</b>   |
| 50                        | <b>Embryology</b> <ul style="list-style-type: none"> <li>• Intrauterine development of Nervous system</li> </ul>   |

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|    | <ul style="list-style-type: none"> <li>Principles of Human development</li> </ul>  |
| 51 | <p><b>Gross and fine motor development</b></p> <ul style="list-style-type: none"> <li>Motor development in the normal child</li> <li>Assessment and testing of infant and child development</li> <li>Motor behaviour during early childhood and adolescent</li> </ul>  |
| 52 | <p><b>Developmental Reflexes</b></p> <ul style="list-style-type: none"> <li>Primitive Reflexes</li> <li>Spinal reflexes</li> <li>Brainstem reflexes</li> <li>Cortical reflexes/reaction</li> </ul>   |
| 53 | <p><b>Theories:</b></p> <p>A) Theories of motor development of normal child, B) Theories of motor control<br/>C) Theories of motor learning.<br/>D) Stages of Learning</p>   |
| 54 | <p><b>Paediatric Neurological disorder:</b></p> <p>a) Early identification of paediatric neurological disorders and early intervention skill.<br/>b) Infant at high risk for developmental delay<br/>c) Infant and child with Cerebral Palsy<br/>d) Spina bifida<br/>e) Traumatic Brain injury<br/>f) Traumatic and atraumatic spinal cord injuries in paediatrics<br/>g) Neuromuscular disorders in childhood: Muscular dystrophies, SMA, Polyneuropathy, meningitis, encephalitis etc<br/>h) Intellectual disabilities focus on Down Syndrome<br/>i) Autism Spectrum Disorder and Physical therapy</p> |
| 55 | <p>a) Parent education &amp; counselling<br/>b) Providing family centred care in paediatric physiotherapy</p>  |
| 56 | Pathological and radiological investigations/interpretations in paediatric neurological conditions   |
| 57 | Advanced skills in assessment of paediatric, neuropsychological and neurosurgical conditions.<br>Neurological Scale- Glasgow coma scale, GMFM, Sensory profile, etc  |
| 58 | Surgical procedures related to Neuro paediatric disorders including recent advances in Neurological surgeries. (Hydrocephalus, Spina bifida etc) and its preoperative and post-operative complete physiotherapy management   |
| 59 | Advanced Physiotherapy approaches – Neurophysiological principles, e.g. PNF, NDT, Rood's Approach, Motor Relearning Programme, &Vojta  |
| 60 | Clinical decision making and evidence based practice to formulate effective assessment and treatment program.  |
| 61 | Assessment and management of posture and gait in paediatric neurological conditions  |
| 62 | Physiotherapy management in:<br>a) progressive and non-progressive paediatric neurological conditions, including terminally ill child. b) Perceptuomotor and sensory issues in children.   |
| 63 | Role of Physiotherapy in Neonatal & Paediatric intensive care units.   |
| 64 | Social integration of child in school and community – measures to ensure – attitudinal,  |

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|   | environmental, manpower, assistive technology, legislation and support.<br><ul style="list-style-type: none"> <li>- Adaptive equipment for physically challenged children.</li> <li>- Orthotics and Prosthetics.</li> </ul>  |
| 65  | Pharmacotherapeutics in neurological conditions and its relevance in physiotherapy.  |
|   | <b>B) Adult Neurophysiotherapy:</b>  |
| 66  | Review of basic concepts of Nervous system, (Anatomical and Physiological)   |
| 67  | <ul style="list-style-type: none"> <li>- Neural Plasticity</li> <li>- Movement Plasticity</li> </ul>   |
| 68  | Clinical decision making and evidence based practice to formulate effective assessment and treatment program.  |
| 69  | Advance skills in assessment of adult Neurological, Neurosurgical & Neuropsychological conditions.   |
| 70  | Various outcome measures and assessment methods used in adult & geriatric neurological conditions e.g. GCS, MMSE, Berg Balance Scale, Fugl Mayer scale, Barthel index, ASIA Impairment scale, etc.   |
| 71  | Advanced Neuro-therapeutic skills for management e.g. PNF, NDT, Rood's Approach, Motor Relearning Programme, Brunnstrom approach   |
| 72  | Pathophysiology, clinical features and Physiotherapy management of CNS,ANS and Peipheral Nervous System: <ul style="list-style-type: none"> <li>• Cerebrovascularaccidents,</li> <li>• Inflammatory,</li> <li>• Degenerative</li> <li>• Metabolic</li> <li>• Traumatic</li> <li>• Infectious and associated conditions of nervous system. (Disorders of Cranial nerves.</li> <li>• Space Occupying Lesions in CNS, Traumatic brain injury, Traumatic spinal cord, Vestibular Disorders, &amp; Myopathies)</li> </ul> |
| 73  | Social integration of disabled person in community – measures to ensure – attitudinal, environmental, manpower, assistive technology, legislation and support.<br><ul style="list-style-type: none"> <li>- Adaptive equipment for physically challenged individuals.</li> <li>- Orthotics and Prosthetics.</li> </ul>  |
| 74  | Pharmacotherapeutics in neurological conditions and its relevance in physiotherapy.  |
| 75  | Recent advances in the Technology, Physiotherapy management of Neurological conditions   |
| <b>CARDIOVASCULAR AND RESPIRATORY PHYSIOTHERAPY</b> |  |
|   | <b>A) Respiratory Physiotherapy:</b>   |
| 76  | Structure, function, Biomechanics, &Patho mechanics of the respiratory system and thorax.<br>Embryological development of Respiratory System.  |
| 77  | Assessment of all neonatal, paediatric, adult, geriatric and Critically ill patients associated with dysfunctions of the respiratory system and thorax.  |
| 78  | Clinical reasoning in physiotherapeutic evaluation & management of all neonatal, paediatric, adult and geriatric dysfunctions of the respiratory system and thorax in acute care and in rehabilitation.  |



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| 79 | Interpretation and application of Investigations related to Respiratory and thoracic dysfunction and its relevance to physiotherapy.(for e.g.; Blood and Sputum, X-Ray, PFT, ABG etc)   |
| 80 | Advances in functional diagnostic procedures & various outcome measures relevant to assess intervention to dysfunctions of thorax and respiratory system.   |
| 81 | Patho physiology and clinical features of acute and chronic respiratory dysfunction and its medical (Pharmacotherapy) and physiotherapy management.   |
| 82 | Surgical procedures related to Respiratory disorders including recent advances in Pulmonary surgeries. (Thoracotomy, Thoracoplasty, Pleurodesis, ICT, Lobectomy, Pneumonectomy, VATS, Lung Transplantationetc) and its preoperative and post-operative complete physiotherapy management.         |
| 83 | Management of the critically ill: Knowledge of Airways -types & Mechanical ventilator, use of Oxygen therapy;<br>Physiotherapeutic Interventions in intensive care, weaning and ICU monitoring.   |
| 84 | Clinical decision making and, Evidence based practice in management of Respiratory & Thoracic impairments & dysfunction.  |
| 85 | Ergonomics and energy conservation in Respiratory dysfunction and use of assistive devices to enhance function and performance.   |
| 86 | Special Physiotherapy techniques used for Bronchial hygiene and other acute and chronic respiratory disorders with recent advances  |
| 87 | Pulmonary rehabilitation.   |
|    | <b>C) Cardiovascular Physiotherapy:</b>   |
| 88 | <ul style="list-style-type: none"> <li>• Structure, function, Biomechanics, &amp;Pathomechanicsof the Thorax</li> <li>• Structure &amp; function, of cardiovascular system including peripheral vessels and mediastinum.</li> <li>• Embryological development of cardiovascular System</li> </ul> |
| 89 | Assessment of all neonatal, paediatric, adult, geriatric and Critically ill patients associated with dysfunctions of the cardiovascular system  |
| 90 | Clinical reasoning in physiotherapeutic evaluation & management of all neonatal, paediatric, adult dysfunctions in rehabilitationof the cardiovascular including peripheral Vasculature system and mediastinum in acute care and rehabilitation   |
| 91 | Interpretation and application of Investigations related to cardiovascular including peripheral Vasculature system and mediastinum and its relevance to physiotherapy.(for e.g.; Blood and ECG, X-Ray, TMT, ABG,2D Echo, Doppler etc)   |
| 92 | Advances in functional diagnostic procedures & various outcome measures relevant to assess intervention to dysfunctions of cardiovascular and peripheral vascular system. (Angiography, Colour Doppler etc.)  |
| 93 | Patho physiology and clinical features of acute and chronic cardiovascular and peripheral vascular system.and its medical (Pharmacotherapy) and physiotherapy management.   |
| 94 | Surgical procedures related to cardiovascular and peripheral vascular system. Disorders including recent advances in Cardiothoracic surgeries. (CABG, Heart Transplantation, Angioplasty, Robotics Surgery etc) and its preoperative and post operative complete physiotherapy management         |
| 95 | <ul style="list-style-type: none"> <li>• Management of the critically ill: Knowledge of Airways -types &amp; management</li> <li>• Mechanical ventilator, use of Oxygen therapy; Physiotherapeutic Interventions</li> </ul>   |

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|  | <p>in intensive care, weaning and ICU monitoring.</p> <ul style="list-style-type: none"> <li>• Hyperbaric Oxygen Therapy.</li> </ul>  |
| 96   | Clinical decision making and, Evidence based practice in management of cardiovascular and peripheral vascular dysfunction.  |
| 97   | Evidence based practice in assessment and management of cardiovascular and peripheral vascular dysfunction and Cardiac failure.   |
| 98   | Principles of health and performance, Risk stratification, Prevention and health promotion.   |
| 99   | Cardiac Rehabilitation.   |
| 100  | Peripheral Vascular rehabilitation.   |
| 101  | Cardio-Respiratory fitness testing and training in sports and diseases.   |
| 102  | Knowledge and skill of basic & advanced life support.   |
| <b>COMMUNITY HEALTH PHYSIOTHERAPY</b>            |   |
| <b>A) Essentials of Community Physiotherapy:</b> |   |
| 103  | Legal issues – National & International (WHO) Rehabilitation acts. Implementation of the Act.   |
| 104  | Health delivery system in India: Health and Illness. Levels of Healthcare.  |
| 105  | Principles and practice of fitness training for health promotion in community   |
| 106  | Basic Concepts of Rehabilitation and Institute based rehabilitation services and multi-disciplinary approach.   |
| 107  | <p>Community Based Rehabilitation:</p> <ul style="list-style-type: none"> <li>a) Methodology of CBR with reference to National Health Delivery system and Spectrum of CBR.</li> <li>b) Role of Government and Non-Government organizations in CBR.</li> <li>c) Principles and practice of Rehabilitation and outreach services.</li> <li>d) Role of Rehabilitation counselling, holistic approach, skills training in CBR.</li> </ul> |
| 108  | Role of Community Physiotherapist in, Primary Health Centre, District Rehabilitation Centre, State and National Institutes.   |
| 109  | Legislation laws for persons with disability at National and UN (United Nations) level. Public awareness to the various disabilities.   |
| 110  | Evaluation of Disability as per ICF for Musculoskeletal, Neurological and Cardio-respiratory conditions and its Rehabilitation.   |
| 111  | Appropriate Technology, Assistive devices used for Stability & Mobility to enhance functional independence.   |
| 112  | <p>Home exercise programs for Musculoskeletal, Neurological and Cardio-respiratory conditions.</p> <p>Examples: Spinal cord injury, Traumatic brain injury, Stroke, Parkinson's disease, Amputations, Heart disease &amp; pulmonary disease, Arthritis, Chronic pain, Burn, Degenerative &amp; progressive disorders etc.</p>   |
| 113  | <p><b>Disaster Management:</b></p> <ul style="list-style-type: none"> <li>a) Definition</li> <li>b) Hazards: Types of injury</li> <li>c) Role of Community Physiotherapist in Disaster Management: <ul style="list-style-type: none"> <li>i) Preparedness</li> <li>ii) Response</li> </ul> </li> </ul>  |

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|     | iii) Recovery   |
|     | <b>B) Women's Health, Industrial Health and Geriatric Health:</b>   |
| 114 | Geriatric Health: Theories and Physiology of Ageing.<br>Factors affecting ageing.   |
| 115 | Basic concepts of Geriatric Medicine and Geriatric surgery.<br>Common diseases affecting Elderly.   |
| 116 | Assessment of the Geriatric conditions.   |
| 117 | Geriatric Rehabilitation: <ul style="list-style-type: none"> <li>• Exercise prescription.</li> <li>• Nutrition in geriatric health.</li> <li>• Fall prevention programme.</li> <li>• Issues related to incontinence, balance and co-ordination.</li> <li>• Psychosocial and safety issues in elderly.</li> <li>• Services for elderly.</li> <li>• Home, work place modification.</li> <li>• Recent advances.</li> </ul>   |
| 118 | Women's Health: Women's reproductive health care. <ul style="list-style-type: none"> <li>• Physiology of Pregnancy and Ante- natal care and exercise prescription.</li> <li>• Physical therapy care, Pain mechanism and relief during Normal, Pre and Post-labour.</li> <li>• Post-partum care: <ul style="list-style-type: none"> <li>• Anatomical and physiological changes, post- partum blues.</li> <li>• Post-natal (FTND) and post caesarean exercise program.</li> <li>• Neonate handling Education: Kangaroo care etc.</li> </ul> </li> <li>• Common gynaecologic conditions and Physiotherapy management (e.g. pelvic inflammatory diseases, incontinence, utero-vaginal prolapsed, infertility, PCOD, obesity etc).</li> <li>• Common Surgical Interventions: Hysterectomy, Laparotomy etc.</li> <li>• Acute and chronic pelvic floor dysfunction and Physiotherapy management.</li> <li>• Diagnosis and treatment of musculoskeletal pain and dysfunction in the childbearing year.</li> <li>• Cardiac diseases and disorders like Pregnancy induced hypertension, Vascular, Respiratory, Neurologic condition. <ul style="list-style-type: none"> <li>• Recent Advances in women health.</li> </ul> </li> </ul> |
| 119 | Other issues related to Womens Health: <ul style="list-style-type: none"> <li>• The climacteric (Menopause): Exercise prescription.</li> <li>• Cancer rehabilitation (Breast and Reproductive Organs)</li> <li>• Anatomical, physiological, psychological, cardiovascular &amp; other systemic changes, post-menopausal osteoporosis, falls, fractures in elderly woman</li> <li>• Exercise testing and prescription in female athletes.</li> </ul>   |
| 120 | <b>Industrial Health:</b><br>Occupational Health, Occupational Hazards, Industrial Hygiene, Vulnerable workers group. <ul style="list-style-type: none"> <li>• Factors affecting, classification and epidemiology.</li> <li>• Industrial hygiene, prevention &amp; management.</li> </ul>   |

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|     | <ul style="list-style-type: none"> <li>• Industrial therapy: traditional medical model v/s worker care spectrum, team approach, impact &amp; outcome, occupational stress, environmental pollution, vulnerable worker groups.</li> <li>• Injury prevention: ergonomics, job analysis, job placement assessment &amp; pre-employment screening.</li> <li>• Employee fitness programme</li> <li>• Returning to work</li> <li>• Functional capacity assessment, body conditioning, work conditioning &amp; hardening, Job simulation educating the worker for maximum productivity.</li> <li>• Energy: - Principles, application of ergonomics to the design &amp; /or redesign of jobs, manufacturing workstations, &amp; other work environments to achieve increased profitability &amp; reductions in injury illness</li> <li>• Frequent types of injuries related to work place design, repetitive motion &amp; cumulative trauma disorders</li> <li>• Management in industrial therapy, regulations &amp; regulatory agencies.</li> <li>• Designing auditory and visual displays for workers.</li> <li>• Recent advances</li> </ul> |
| 121 | Ergonomics, Principles, Issues related to hand tools, posture, material handling and lifting   |
| 122 | Evidence Based Practice in Community Health.   |

## PART II: RESEARCH METHODOLOGY

| SN | Topics   |
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|    | <b>A) Research Methodology</b>   |
| 1  | Introduction to research   |
| 2  | Types of research and Defining a research question   |
| 3  | Qualitative study designs<br>Grounded theory and Phenomenological methods.   |
| 4  | Use of Delphi process  |
| 5  | Quantitative study   |
| 6  | Type I and type II bias  |
| 7  | Study design: types, Case study, Case series, longitudinal cohort, Pre post design, Time series design, repeated measures design, Randomized control design.                                       |
| 8  | Sampling design, calculating minimum sample size based on design.  |
| 9  | Measurement: Properties of measurement: reliability, validity, responsiveness, Minimally Clinically Important Difference ( <b>MCID</b> ).  |
| 10 | Outcome measures: Use of outcome measures in rehabilitation research.  |
| 11 | Research Methods: Designing methodology, Reporting results.  |
| 12 | Communicating research.  |
| 13 | <b>Scientific Writing:</b><br>Definition and kinds of scientific documents – Research paper, Review paper, Book, Reviews, Thesis, Conference and project reports (for the scientific community and |

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|    | for funding agencies).<br>Publication – Role of author, Guide, Co-authors.<br>Structure, Style and contents; Style manuals (APA, MLA); Citation styles:<br>Footnotes, References; Evaluation of research.                   |
| 14 | Significance of Report writing; Different steps in Report writing; Mechanics and precautions of writing research reports Oral and poster presentation of research papers in conferences/symposia; Preparation of abstracts. |
|    | <b>A) Biostatistics:</b>  |
| 15 | Introduction to Biostatistics.<br>Sources and Presentation of Data.   |
| 16 | Measures of Location and Variability & its Measures.<br>Normal distribution and Curve   |
| 17 | Sampling, Probability, Sampling variability and Significance.   |
| 18 | Significance of difference in Means, for small Sample and Large sample  |
| 19 | Statistical inference. Comparison of group means: T-test.   |
| 20 | Analysis of variance.   |
| 21 | Multiple comparison tests. Non parametric tests.  |
| 22 | Correlations and Regression.  |
| 23 | Analysis of frequencies: Chi square.  |
| 24 | Statistical measure of reliability.   |
| 25 | Power analysis – Determining sample size.   |
| 26 | Measures of Population – Rate, Ratio, Proportion, Incidence and prevalence, Relative risk, Risk ratio, Odds ratio.  |

## SCHEME OF EXAMINATION

### PhD Entrance (AIPHDCET)

**Theory:** There will be one papers (Part I & II) of 100 marks objectives of three hours duration details are as follows:

| <b>Part No.</b> | <b>Heads</b>         | <b>Out Of</b>  | <b>Total Questions</b> | <b>Marks</b> |
|-----------------|----------------------|----------------|------------------------|--------------|
| Part I          | Physiotherapy        | All Compulsory | 1 M X 50               | 50 Marks     |
| Part II         | Research Methodology | All Compulsory | 1 M X 50               | 50 Marks     |

**PRIMARY TEMPLATE**

| Sr. No. | Type of Question     | Total no. of Questions | Level 3 |   | Level 4 |   | Level 5 |   | Level 6 |   | Reasons There off |
|---------|----------------------|------------------------|---------|---|---------|---|---------|---|---------|---|-------------------|
|         |                      |                        | E       | A | E       | A | E       | A | E       | A |                   |
| 1       | Physiotherapy        | 50                     | 20      |   | 15      |   | 10      |   | 05      |   |                   |
| 2       | Research Methodology | 50                     | 20      |   | 15      |   | 10      |   | 05      |   |                   |