M. P. T. SYLLABUS

1. DURATION OF THE COURSE
   1.1. The duration of Master of Physiotherapy course shall be extended over a period of two continuous years on a full time basis. Any break in the career, power of extension of the course and the fixation of the term shall be rested with the university.

2. MEDIUM OF INSTRUCTION
   2.1. English will be the medium of instruction for the subjects of study and for the examination of the MPT course.

3. NOMENCLATURE
   3.1. The course will be referred to as a Master of Physiotherapy

4. OBJECTIVES OF THE COURSE
   4.1. To prepare a postgraduate student towards professional autonomy with self regulating discipline.
   4.2. To form base of professional practice by referral as well as first contact mode using evidence based practice
   4.3. To impart research basis in order to validate techniques and technologies in practice of physiotherapy
   4.4. to acquaint a student with concept of quality care at the institutional as well as at the community levels
   4.5. to inculcate appropriate professional relationship in multidisciplinary setup, patient management and co partnership basis
   4.6. To prepare students to address problems related to health education and community physiotherapy
   4.7. to practice the concept of protection of the community during referral as well as first contact practice
   4.8. To provide experience in clinical training and undergraduate training partly
   4.9. To provide honest competent and accountable physiotherapy services to the community.
5. COURSE OF THE STUDIES

5.1. The course of study, subjects and teaching schedule for I and II year MPT course is shown separately in Table 1 and 2

5.2. Table 1: First year MPT

<table>
<thead>
<tr>
<th>Sr no</th>
<th>Subjects</th>
<th>Teaching hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Basic Sciences</strong></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>→ Work physiology and electrophysiology</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>→ Biomechanics and bioengineering</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>→ History of physiotherapy education and practice</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>→ Principles of physiotherapy education</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>→ Education technology</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>→ Research methodology and biostatistics</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>→ Ethics, Management and planning</td>
<td>1200</td>
</tr>
<tr>
<td>2</td>
<td>Physical and functional diagnosis I</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>Advanced physiotherapeutics I</td>
<td>50</td>
</tr>
<tr>
<td>4</td>
<td>Clinical training</td>
<td>1200</td>
</tr>
<tr>
<td>5</td>
<td>Seminars, Journal Clubs, Case presentations, teaching skills, Field works etc.</td>
<td>100</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>1760</strong></td>
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</tbody>
</table>
5.3. Table 2: Second year MPT

<table>
<thead>
<tr>
<th>Sr no</th>
<th>Subjects</th>
<th>Teaching hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Physical and functional diagnosis II</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>Advanced physiotherapeutics II (Medical)</td>
<td>50</td>
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<tr>
<td></td>
<td>Advanced physiotherapeutics II (Surgical)</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>Electives:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Musculoskeletal &amp; Sports Physiotherapy</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>- Neurological physiotherapy</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>- Cardio - pulmonary physiotherapy</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>- Pediatric physiotherapy</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>- Community physiotherapy</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>- Sports physiotherapy</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>- Electrophysiology and Electro diagnosis.</td>
<td>300</td>
</tr>
<tr>
<td>4</td>
<td>Clinical training</td>
<td>1260</td>
</tr>
<tr>
<td>5</td>
<td>Seminars</td>
<td>50</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>1760</strong></td>
</tr>
</tbody>
</table>
6. DISSERTATION
   6.1. Every candidate pursuing MPT degree course is required to carry out work on a selected research project under the guidance of a recognized post graduate teacher. The results of such works shall be submitted in the form of dissertation.
   6.2. The dissertation should be preferably interventional/ experimental/ observational. The dissertation is aimed to train a graduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, research and review of the literature getting acquired with recent advances, designing of a research study, collection of data, critical analysis and comparison of results and drawing conclusions.
   6.3. Every candidate shall submit their dissertation to The University in 3 copies. The synopsis should be submitted to the college.
   6.4. Such synopsis will be reviewed by on ethical committee, decided by the individual college, The Chair Person should be someone from outside the college.
      i) Chair Person
      ii) Social Worker
      iii) Lawyer
      iv) Subject Expert
      v) Guide
      vi) One Doctor from the Medical College.
7. Every candidate shall submit their dissertation to The university in three typed written copies, as per the topics approved by the Principal of the college. No change in the dissertation topic or guide shall be made without prior approval of the university. The candidates shall submit the dissertation at the end of 3rd term. If dissertation has not been submitted in time, the candidate will not be allowed to appear in the examination.
   7.1. A candidate who has submitted his dissertation once will not be required to submit a fresh dissertation if he re-appears for the examination in the same branch on a subsequent occasion, provided that the dissertation has been accepted by the examiners.
   7.2. The dissertation should be written under the following heading.
      7.2.1. Introduction
      7.2.2. Aim or Objective of the Study.
      7.2.3. Review of the literature
      7.2.4. Materials and Methods
      7.2.5. Results
      7.2.6. Discussion
      7.2.7. Conclusion
      7.2.8. Summary
7.2.9. References
7.2.10. Tables
7.2.11. Annexure

7.3. The written text of the dissertation shall not be less than 50 pages and should not exceed 100 pages excluding references, tables, questionnaires, and other annexure. It should be neatly typed in double line spacing on the one side of paper (A4 size, 8.27”X 11.69 and bound properly. Spiral binding should be avoided. The guide, Head of the Department of the Institution shall certify the dissertation.

8. SCHEDULE OF EXAMINATION
8.1. The examination for MPT course shall be held at the end of 2 academic years (4 academic Terms)
8.2. There shall be two university examination session in an academic year i.e. in June and in the month of November.

9. SCHEME OF EXAMINATION
9.1. The degree of Master of Physiotherapy will be taken by papers, practical and viva voice only.
9.2. Written examination (theory)
9.2.1. A written examination consisting of 5 question papers, each of three hours duration and each paper carrying 100 marks. Recent advances in physiotherapy may be asked in any or all the 5 papers.
9.2.2. The paper 4 and 5 will be for elective subject in the branch chosen by candidates.
9.2.3. The theory examination shall be held sufficiently earlier than clinical/practical examination.

<table>
<thead>
<tr>
<th>Sr no</th>
<th>Subject</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper 1</td>
<td>Basic sciences</td>
<td>100</td>
</tr>
<tr>
<td>Paper 2</td>
<td>Physical and functional diagnosis part I and II</td>
<td>100</td>
</tr>
<tr>
<td>Paper 3</td>
<td>advanced physiotherapeutics part I and II</td>
<td>100</td>
</tr>
<tr>
<td>Paper 4</td>
<td>Elective I</td>
<td>100</td>
</tr>
<tr>
<td>Paper 5</td>
<td>Elective II</td>
<td>100</td>
</tr>
</tbody>
</table>

9.3. Clinical examination -500 marks
9.3.1. It should be aimed at examining clinical skills and competency of the candidates undertaking independent work as a specialist.

9.3.2. Viva voice – 50 marks

9.3.2.1. Viva voice examination shall aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills. The marks of viva voice examination shall be included in the clinical examination to calculate the percentage and declaration of results. The college should see that the exams are conducted in such a way that all the following is included and the result i.e. submitted shall be of the total marks only.

<table>
<thead>
<tr>
<th>Exam</th>
<th>Marks</th>
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<tr>
<td>Major case (elective)</td>
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</tr>
<tr>
<td>Minor case 1 (elective)</td>
<td>75</td>
</tr>
<tr>
<td>Minor case 2 (non-elective)</td>
<td>75</td>
</tr>
<tr>
<td>Dissertation viva</td>
<td>50</td>
</tr>
<tr>
<td>Microteaching</td>
<td>50</td>
</tr>
<tr>
<td>Spot examination</td>
<td>50</td>
</tr>
<tr>
<td>Viva voice</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>500</strong></td>
</tr>
</tbody>
</table>

10. CRITERIA FOR DECLARING AS PASS IN UNIVERSITY EXAMINATION

10.1. To pass any M. Physiotherapy examination a student must obtain 50% marks in the theory aggregate and 50% marks in the practical aggregate in concerned examination.

10.2. Award of classes:

10.2.1. First class with distinction: 75% and above in aggregate provided the candidates pass the examination in first attempt.

10.2.2. First class: 60% and above in aggregate provided the candidate pass in first attempt.

10.2.3. Pass class: 50% of marks in theory aggregate and 50% of maximum marks in clinical and viva-voice aggregate.

11. DEFINITION OF TRIAL

11.1. First trial is deemed to take place when the candidate is due to appear for the examination irrespective of his/her actual appearance, provided that non-appearance is not a result of reasons beyond his/her control. Similarly 2nd, 3rd, etc. trials relating to subsequent examination.
12. TYPE OF QUESTIONS IN WRITTEN PAPER
   12.1. Theory: 100 marks each paper
      12.1.1. Long essay (2 questions) – 2x20 = 40 marks
      12.1.2. Short essay (6 questions) – 6x10 = 60 marks

13. COURSE CONTENTS – I YEAR MPT
   13.1. PAPER – I BASIC SCIENCES
      13.1.1. Work physiology
         13.1.1.1. Physiological and physical work
         13.1.1.2. Ergonomic aspects of work, energy transfer, oxygen intake and oxygen debt, cardio-respiratory and thermo regulatory changes during muscular work.
         13.1.1.4. Individual and environmental factors influencing muscle work and environmental control.
         13.1.1.5. Fatigue assessment and scientific organization of work rest regimes to control fatigue.
         13.1.1.6. Cardiovascular and respiratory dynamics (including neuro-humoral control)
         13.1.1.7. Acute effect of steady level exercise on following parameters – blood flow, heart rate, blood pressure and temperature, respiratory rate, acid base balance, body temperature and fluid-electrolyte balance and subtract utilization.
         13.1.1.8. Nutritional deficiencies, effects and management
         13.1.1.9. Conditioning effects of various levels of submaximal exercises
         13.1.1.10. Physiological movements – biophysics of connective tissue, response to mechanical loading.
         13.1.1.11. Articular neurophysiology and principles of applications.
      13.1.2. Electrophysiology
         13.1.2.1. Characteristics and components of electrotherapeutic stimulation systems and characteristic and components of electro physical assessment devices.
         13.1.2.2. Electrical excitability of muscle and nerve and composition of peripheral nerves
         13.1.2.3. Muscle plasticity in response to electrical stimulation
         13.1.2.4. Neurobiology of afferent pain transmission and central nervous system mechanisms of pain modulation
         13.1.2.5. Electrical stimulation and circulation
13.1.2.6. Clinical electrophysiological testing
13.1.2.7. Bioelectricity (RMP- action potential)
13.1.2.8. Neurotransmitters. Synapse and synaptic transmission
13.1.2.9. Classification – muscle fibers, nerve fibers and motor units
13.1.2.10. Propagation of nerve impulse and physiology of muscle contraction.
13.1.2.11. Reflex - classification and properties
13.1.2.12. Sensations – pathways and classification
13.1.2.13. Type of nerve injury and Wallerian degeneration
   13.1.2.14.1. Instrumentation electrodes
   13.1.2.14.2. EMG - normal and abnormal, application of NCV
   13.1.2.14.3. Application of NCV i.e.
     13.1.2.14.3.1. Sensory/motor
     13.1.2.14.3.2. F wave
     13.1.2.14.3.3. H reflex
     13.1.2.14.3.4. Blink reflex
     13.1.2.14.3.5. SSEP
13.1.3. Biomechanics
   13.1.3.1. Material properties of bones and soft tissues.
   13.1.3.2. Internal and external forces during posture and activities
   13.1.3.3. Biomechanics of respiration, circulation, hand function and gait.
   13.1.3.4. Methods of kinetics and kinematics investigation, anthropometrics measurements.
   13.1.3.5. Neural control of locomotor functions
   13.1.3.6. Forces, equilibrium, livers – laws, mechanical advantage, material properties of bones and soft tissues
   13.1.3.7. Applied mechanics in the evaluation procedures
   13.1.3.8. Analysis of functional hazards related to environment/industry and clinical reasoning for the appropriate ergonomic advice
   13.1.3.9. Applied mechanics in the application of prosthesis, orthosis and mobility aids – materials, designs and bio-mechanical compatibility

13.1.4. History Of Physiotherapy Education And Practice
   13.1.4.1. History of Physiotherapy and developments

13.1.5. Principles of Physiotherapy Education

13.1.6. Education Technology


13.1.6.5. Measurement and evaluation: Nature of measurement of education, meaning, process, personal, Standardized, Non-standardized tests. Steps of constructing a test, measurement of cognitive domain, assessment techniques of affective and psychomotor domains, administering scanning and reporting. Standardized tools, important tests of intelligence, attitude, instrument, personality, achievement and status scale. Programme evaluation Cumulative evaluation.

13.1.6.6. Guidance and counseling: Philosophy, principles and concepts, Guidance and counseling, Services of student and faculty. Faculty development and development of personnel for P.T. services
13.1.7. **Research methodology and biostatistics**
- 13.1.7.1. Meaning of research, objectives, motivation and type of research
- 13.1.7.2. Research process and criteria for good research
- 13.1.7.3. Problems encountered by researchers in India and defining the research problem
- 13.1.7.4. Research design and sampling design
- 13.1.7.5. Measurement and scaling techniques. Methods of data collection
- 13.1.7.6. Processing and analysis of data. Sampling fundamentals
- 13.1.7.7. Testing of hypothesis and Chi square test
- 13.1.7.8. Analysis of variance and co-variance
- 13.1.7.9. Role of computer in research and ethical concepts

13.1.8. **Ethics Management and Planning**
- 13.1.8.1. **P.T Ethics:** Morals and ethics, Ethical analysis of moral problems, Ethical issues in physical therapy, Rules and regulations of Indian Association of Physiotherapists, Ethical rules, Aims and objectives of Indian Association of Physiotherapists.
- 13.1.8.2. **Physical therapy and Law:** Medico-legal aspects of physical therapy, Liability, Negligence, Malpractice, Licensure, Workman’s compensation.
- 13.1.8.3. **Management and Planning:** P.T. Department management policies and procedures recruitment, Interview, Orientation probationary period, Salary, Hours of work, Leave facilities, Retirement, Referred policy, Equipment maintenance records, Statistics, Functioning, Department planning, design and construction, Planning and innovation, Growth and expansion, Type and size of hospital, Services and activities, Space requirements, Number of functional area, elements, Occupancy time, Gymnasium, Patient waiting areas, storage facilities, lighting, Floor surfaces.

13.2. **Physical and Functional diagnosis-I**
- 13.2.1. Clinical examination in general and declaration of movement dysfunction.
- 13.2.2. Principles of pathological investigations and imaging techniques related to neuromuscular, skeletal and cardiopulmonary disorders with interpretation.
- 13.2.4. Anthropometric measurements
- 13.2.5. Physical fitness assessment by
13.2.5.1. ROM
13.2.5.2. Muscle strength, endurance and skills
13.2.5.3. Body composition
13.2.5.4. Cardiac efficiency tests and spirometry
13.2.5.5. Fitness test for sports
13.2.6. Psycho-physiological and neuro-psychological tests
13.2.8. ICIDH and ICF

13.3. Advanced Physiotherapeutics - I

13.3.1. Physiotherapy in pain management such as electromagnetic radiations, ultrasound, electro acupuncture etc.
13.3.2. Maternal and child care in general physiotherapy
13.3.3. Applied neuro anatomy and neuro physiotherapy
13.3.4. Theories of motor learning
13.3.5. Therapeutic biofeedback and psychosomatic training
13.3.6. Combination therapy
13.3.7. Functional training – respiratory exercises, training for feeding, bladder and bowel training, coughing and compression, artificial respiration, inhalation therapy and intensive care unit procedures.
13.3.8. Yogasanas and Pranayama
13.3.8.1. Physiological and therapeutic principles of yoga
13.3.8.2. Yogasanas for physical culture, relaxation and meditation
13.3.8.3. Application of Yogasanas in physical fitness, flexibility, cardiac rehabilitation and neuromotor learning
13.3.8.4. Pranayama and respiratory physiology
13.3.8.5. Kriyas and their physiological significance. Therapeutic application of yoga
13.3.8.6. Yoga – a holistic approach
13.3.10. Magneto therapy
13.3.11. Naturopathy
13.3.12. History of manual therapy, overview of manual therapy approaches for all the joints
13.3.13. Clinical reasoning and differential clinical diagnosis based on different approaches such as – Maitland, Kaltenborne, Cyriax, Mulligan and McKenzie
13.3.14. Soft tissue approaches – myofascial release techniques, neural tissue mobilization, muscle energy techniques (MET)
13.3.15. Practical application of various manual therapy modes given in No xiii and xiv above.

14. COURSE CONTENTS – II YEAR MPT

14.1. Physical and functional diagnosis – II
   14.1.1. Massage, mobilization and manipulations
   14.1.2. Geriatric physiotherapy
   14.1.3. Aids and appliances, adaptive functional devices to improve neurological dysfunction
   14.1.4. Inhibition and facilitation techniques
   14.1.5. Exercise ECG testing and monitoring
   14.1.6. Pulmonary function testing
   14.1.7. Cardiovascular function disorders and principles of management, cardio respiratory function disorders and assessment

14.2. Advanced physiotherapeutics (medical) II
   14.2.1. Physiotherapy in common conditions of skin
   14.2.2. Physiotherapy in common vascular diseases
   14.2.3. Physiotherapy in deficiency diseases
   14.2.4. Physiotherapy in respiratory disorders
   14.2.5. Physiotherapy management of ischemic heart disease
   14.2.6. Cardiopulmonary medications and their effects on activity performance
   14.2.7. Exercise planning and prescriptions
   14.2.8. Ergonomic aspects of exercise on oxygen, energy consumption, MET value of various exercises and activity
   14.2.9. Effect of aerobic, anaerobic as well as isometric and isokinetic exercise on cardiac functions
   14.2.10. Physiotherapy in psychiatry
   14.2.11. Management of pain in neurological and musculoskeletal disorders.
   14.2.12. Physiotherapy management in arthritis and allied conditions

14.3. Advanced physiotherapeutics (surgical) II
   14.3.1. Physiotherapy management of postoperative patients in cardiopulmonary disorders
   14.3.2. Monitoring systems and defibrillator. Artificial respirators
14.3.3. Physiotherapy in postoperative management of metabolic, hormonal, neoplastic and infective conditions of bones and joints
14.3.4. Physiotherapy following arthroplasty, implants and soft tissue repairs.
14.3.5. Pre and post operative physiotherapy in tendon transfer. Electrical stimulation and biofeedback procedures
14.3.6. Physiotherapy management following head injuries, in intensive care and neurosurgical procedures
14.3.7. Physiotherapy following general surgery
14.3.8. Physiotherapy following urosurgery
14.3.9. Physiotherapy following plastic surgery
14.3.10. Physiotherapy management following selective and common cases of oncologic surgeries
14.3.11. Physiotherapy following obstetric and gynecological disorders.

14.4. ELECTIVE SUBJECTS
14.4.1. Physiotherapy in neurological conditions
14.4.1.1. Objectives
14.4.1.1.1. The course shall enable the candidate to expertise in early intervention acquisition and application of neuromotor and sensory integration skills on adults and pediatric neurological conditions as a first contact practitioner. Such candidate shall also attain an ability to acquire a position as consultant in the team of health care professionals involved in electrodiagnosis, disability evaluation, as well work in the management of patients at the intensive care area and/or in the rehabilitation neurologically affected adults and children/neonates. the subspecialties are:
   14.4.1.1.1.1. Adult neurological and psychosomatic conditions and applied neurology
   14.4.1.1.1.2. Developmental and pediatric neuropathological conditions
   14.4.1.1.1.3. Applied biomechanics and bio engineering
   14.4.1.1.1.4. Geriatrics
   14.4.1.1.1.5. Electro diagnosis
   14.4.1.1.1.6. Intensive care
14.4.1.2. Syllabus
   14.4.1.2.1. Anatomy and physiology of central nervous system and peripheral nervous system
14.4.1.2.2. Clinical symptomatology and pathophysiology of the neurological disorders.
14.4.1.2.3. Clinical assessment and investigations along with differential diagnosis
14.4.1.2.4. Electro diagnosis, conventional methods – strength duration curves, accommodation, skin temperature, resistance and blood flow.
14.4.1.2.5. Electromyography especially with reference to pathophysiology and pathomechanics. Quantitative EMG
14.4.1.2.6. Evoked potential studies
14.4.1.2.7. Evaluation on ANS dysfunction with reference to psycho physiological testing. Biofeedback training
14.4.1.2.8. Neuropsychological functions, perception testing and training
14.4.1.2.9. Motor control assessment, reflexes and autonomic reactions – voluntary control, feedback mechanism
14.4.1.2.10. Motor learning and motor control training techniques
14.4.1.2.11. Functional electrical stimulations and biofeedback methods
14.4.1.2.12. Learning skills, ADL and functional activities
14.4.1.2.13. Aids and appliances in neurological disorders. Prescriptions, testing and training
14.4.1.2.14. Associated functional disturbances of higher functions and their testing and training
14.4.1.2.15. Community based rehabilitation of neurological dysfunction, disability evaluation and management
14.4.1.2.16. Learning techniques of neurophysiotherapy, emphasis on Bobath, Roods, NDT, PNF and Brunnstrom
14.4.1.2.17. Assessment of neurogenic hand and foot
14.4.1.2.18. Neurophysiology of aging and its effects on movement, posture and gait
14.4.1.2.19. Developmental and pediatric neuropathological conditions
14.4.1.2.20. Geriatrics
14.4.1.2.21. Intensive care units
14.4.1.2.22. diagnostic procedures in movement disorders

14.4.2. Physiotherapy in Musculoskeletal conditions and Sports
14.4.2.1. Objectives

14.4.2.1.1. This course shall enable the candidate to establish first contact physiotherapy for the management of musculoskeletal disorders and pain, expertise in the skills of manual medicine, advanced electro-diagnostic therapeutic skills, and ability to function as a consultant in the team of health professionals concerned with sports sciences, hand rehabilitation, women’s health as well as geriatric health and industrial set up. The subspecialties are

14.4.2.1.1.1. Advances in manual medicine and pain management
14.4.2.1.1.2. Rehabilitation of hand
14.4.2.1.1.3. Sports sciences
14.4.2.1.1.4. Industrial health and ergonomics
14.4.2.1.1.5. Women’s health and geriatric health
14.4.2.1.1.6. Applied biomechanics and bio-engineering

14.4.2.2. Syllabus

14.4.2.2.1. Applied anatomy with emphasis on biomechanics, kinesiology, work physiology and locomotor functions
14.4.2.2.2. Clinical assessment and rationale of laboratory investigations along with differential diagnosis
14.4.2.2.3. Clinical symptomatology, pathophysiology and pathomechanics of musculoskeletal conditions
14.4.2.2.4. Functional assessment (hand function, gait, posture, ADL, occupational work)
14.4.2.2.5. Kinetic and kinematics analysis
14.4.2.2.6. Analysis and classification of sports and sports injuries
14.4.2.2.6.1. Various Fitness & Performance tests
14.4.2.2.6.2. Gait evaluation & foot wear modification
14.4.2.2.7. Assessment of locomotor impairments, disabilities and disability evaluation
14.4.2.2.8. Physiotherapy management of locomotor disorders, principles of Medical and Surgical aspects, sports psychology and retraining.
14.4.2.2.9. Prevention of athletic injuries
14.4.2.2.9.1. Tapping Techniques & other protective gears
14.4.2.2.10. Management of sports injuries, sports fitness/rehabilitation of pediatric musculoskeletal disorders.

14.4.2.2.11. Nutrition for Sports
   14.4.2.2.11.1. Optimal Nutrition for exercise, Nutrition for Physical Performance, Pre-Game meal, Carbohydrate loading, Alcohol, Mega Vitamin Therapy, Food for various athletes of different disciplines, Fluid and energy replacement in prolonged exercise

14.4.2.2.12. Doping
   14.4.2.2.12.1. Various methods of doping, anabolic androgenic steroids, caffeine, legal aspects of doping

14.4.2.2.13. Off season, In-season, Post –season training

14.4.2.2.14. Female Specific Problems.

14.4.2.2.15. Orthopedic implants – designs, materials, indications, post operative assessments and training

14.4.2.2.16. External aids, appliances, adaptive self help devices, prescription, biomechanical compatibility, check out and training

14.4.2.2.17. Manual therapies: soft tissue manipulations and mobilizations, neural mobilizations, acupressure

14.4.2.2.18. Joint manipulation – peripheral joints and vertebral joints.

14.4.2.2.19. Neurological complications of locomotor disorders, conservative electrodiagnosis, electromyography and evoked potential studies

14.4.2.2.20. Community based rehabilitation in musculoskeletal disorders

14.4.2.2.21. Rehabilitation of hand

14.4.2.2.22. Industrial health and ergonomics

14.4.2.2.23. Women and geriatric health

14.4.2.2.24. Fitness testing and sports and industry

14.4.3. Physiotherapy in cardio-pulmonary conditions

14.4.3.1. Objectives

14.4.3.1.1.1. The course shall enable the candidate in the knowledge and skill of
operating advanced instrumentation at the intensive care area as well as modern investigative procedures such as stress testing in the presence of a physician. Such candidate shall also attend an ability to function as an essential team member of intensive care units, as well as team of experts in the Cardio-Pulmonary rehabilitation general fitness and health promotion at the hospital set ups industrial/geriatric set ups, health clubs, sports fitness/training and women’s health.

The sub-specialties are:
14.4.3.1.1.1.1. Adult and pediatric emergency
14.4.3.1.1.1.2. Cardiac rehabilitation and management
14.4.3.1.1.1.3. Pulmonary rehabilitation
14.4.3.1.1.1.4. Geriatric and industrial health
14.4.3.1.1.1.5. Women’s health
14.4.3.1.1.1.6. Sports sciences and health promotion

14.4.3.1.2. Syllabus
14.4.3.1.2.1. Anatomy and physiology of cardio vascular and pulmonary systems
14.4.3.1.2.2. Epidemiology, symptomatology and pathophysiology of Cardio-Pulmonary disorders
14.4.3.1.2.3. Clinical assessment, rationale of laboratory investigations and differential diagnosis
14.4.3.1.2.4. Evaluation of pulmonary dysfunctions, lung function tests – volumetric, analysis of blood gases, x-ray chest
14.4.3.1.2.5. Evaluation of cardiac dysfunctions
14.4.3.1.2.6. Evaluation of peripheral vascular disorders: clinical, blood flow studies, temperature plethysmography, ANS dysfunction testing
14.4.3.1.2.7. Risk factors and preventive measures
14.4.3.1.2.8. Cardio-pulmonary emergencies and management principles – medication, critical care, indications of surgical interventions, stabilization of vital functions – defibrillation
14.4.3.1.2.9. Intensive care unit – concept and set up, equipment for advanced methods of
resuscitation, monitoring and patient management: artificial airways, ventilators, pulse oxymeter, defibrillator

14.4.3.1.2.10. Cardio-pulmonary resuscitation
14.4.3.1.2.11. Respiratory physiotherapy – lung hygiene, humidifiers, nebulizers, intermittent positive pressure breathing etc. And rehabilitation
14.4.3.1.2.12. Medical, surgical and physiotherapy management of peripheral vascular disorders
14.4.3.1.2.13. Exercise testing, planning and prescription, aerobic and anaerobic exercise training
14.4.3.1.2.14. Cardiac rehabilitation – conservative and post operative management
14.4.3.1.2.15. CBR in cardiovascular and pulmonary conditions
14.4.3.1.2.16. Physiotherapy management in PICU, NICU, emergency trauma care, ICU, CCU, MICU
14.4.3.1.2.17. Pharmacological agents used in ICUs
14.4.3.1.2.18. Pulmonary rehabilitation
14.4.3.1.2.19. Geriatric and industrial health
14.4.3.1.2.20. Women’s health
14.4.3.1.2.21. Sports sciences and health preparations
14.4.3.1.2.22. Diagnostic procedures in cardiovascular-pulmonary conditions
14.4.3.1.2.23. Fitness testing in sports and industry

14.4.4. Community and rehabilitation Physiotherapy
14.4.4.1. Objectives
14.4.4.1.1. At the end of the course the candidate will
14.4.4.1.1.1. Acquire the in-depth understanding of the concept of community based rehabilitation
14.4.4.1.1.2. Be able to assist in planning and organization of camps at community level
14.4.4.1.1.3. Be able to impart services and training at the community level effectively with minimum resources
14.4.4.1.2. The course shall enable the candidate to expertise in the community health and function in the general set up as consultant. Such candidate shall attain ability as a consultant and mandatory member of health professionals, involved in the following sub-specialties

14.4.4.1.2.1. Sports sciences and health promotion
14.4.4.1.2.2. Movement and psycho-somatic conditions
14.4.4.1.2.3. Cardio-pulmonary rehabilitation
14.4.4.1.2.4. Mother and child care
14.4.4.1.2.5. Industrial health
14.4.4.1.2.6. Geriatrics

14.4.4.2. Syllabus

14.4.4.2.1. Institute based rehabilitation and multi-disciplinary approach
14.4.4.2.2. methodology of CBR with reference to national health care delivery system
14.4.4.2.3. role of national institutes, district rehabilitation centre and primary health centre (with appropriate exposure)
14.4.4.2.4. Public awareness to the various disabilities, communication. Message generation and dissipation.
14.4.4.2.5. persons with disability act – 1995 and related government infrastructure
14.4.4.2.6. Role of government in CBR, inter-sectoral programs and co-ordination. Implementation of the act
14.4.4.2.7. role of non-government organizations in CBR
14.4.4.2.8. scope of community Physiotherapy
14.4.4.2.9. Disabilities detection and early intervention. Disability evaluation, compensation and legislation
14.4.4.2.10. physical fitness, stress management through yoga and psychosomatic approaches
14.4.4.2.11. home exercise programs for various classifications of disabilities
14.4.4.2.12. physiotherapist as a master trainer in CBR
14.4.4.2.13. Physiotherapy in maternal and child health care
14.4.4.2.14. holistic Physiotherapy for the aged
14.4.4.2.15. Physiotherapy role in the industry – preventive, intervention, ergonomic and rehabilitative
14.4.4.2.16. community Physiotherapy as home care program, transfers of skills to non-professional workers as well as the family members
14.4.4.2.17. concept of multipurpose health workers – Anganwadi workers
14.4.4.2.18. epidemiological research, problem identification – preventive measures, community participation
14.4.4.2.19. role of Physiotherapy in training of multipurpose, health purpose
14.4.4.2.20. sports sciences and health promotions
14.4.4.2.21. movement in psychosomatic disorders
14.4.4.2.22. Cardio-Pulmonary rehabilitation

14.4.5. pediatric physiotherapy
14.4.5.1. Objectives
14.4.5.1.1. The course shall enable the candidate to expertise in the early intervention in the management of neonates and high risk babies, neurodevelopmental, musculoskeletal and cardio-pulmonary conditions in the pediatric population (the intensive care, hospital or community set up, school and sport clubs). The sub-specialties are
14.4.5.1.1.1. Pediatric musculoskeletal conditions
14.4.5.1.1.2. Pediatric neurological and psychosomatic conditions
14.4.5.1.1.3. Neonatal care and early intervention
14.4.5.1.1.4. Mother and child care
14.4.5.1.1.5. Cardio-pulmonary conditions in pediatrics including intensive care
14.4.5.1.1.6. Sports in children
14.4.5.2. Syllabus
14.4.5.2.1. Genetic bases of pediatric disorders, embryology and genetic counseling
14.4.5.2.2. Growth and development of a child and its disorders
14.4.5.2.3. Neurodevelopmental assessment, developmental diagnosis, developmental screening
14.4.5.2.4. Cardio-pulmonary assessment of neonate and infant and related pediatric disorders
14.4.5.2.5. Assessment of progressive locomotor disorders – neuropathic and myopathic
14.4.5.2.6. Clinical symptomatology and pathophysiology of locomotor and cardio-pulmonary disorders
14.4.5.2.7. Principles of laboratory investigations for differential diagnosis
14.4.5.2.8. Neonatal care, risk babies, early intervention and management
14.4.5.2.9. Management of congenital locomotor disorders including the prosthetic and orthotic management
14.4.5.2.10. Management of neuropediatric patient (NDT)
14.4.5.2.11. Motor learning process – theory and techniques
14.4.5.2.12. Disorders of perception and sensory integration
14.4.5.2.13. Integrated approach in management of pediatric disorders
14.4.5.2.14. Pediatric surgeries and its post operative management
14.4.5.2.15. CBR in pediatric conditions
14.4.5.2.16. Pediatric musculoskeletal conditions
14.4.5.2.17. Mother and child care
14.4.5.2.18. Cardio-pulmonary conditions in pediatrics including intensive care
14.4.5.2.19. Sports in children

14.4.6. Sports physiotherapy
14.4.6.1. Objectives
14.4.6.1.1. The course shall enable the candidate to establish first contact physiotherapy for management of sports injury, emergency care, athletic first aid, prevention of sports injury. It will help to function as a consultant in the team of health professionals concern with sports science, women’s health and common medical problems related to sports persons. The subspecialties are

14.4.6.1.1.1. Industrial health and geriatrics
14.4.6.1.1.2. Sports injury
14.4.6.1.1.3. Sports psychology
14.4.6.1.1.4. Sports massage
14.4.6.1.1.5. Women’s health

14.4.6.2. Syllabus
14.4.6.2.1. Applied anatomy – scope, skin, muscle, bones, joints
14.4.6.2.2. Applied physiology – blood, cardiovascular, endocrine, nervous system
14.4.6.2.3. Applied pathology – inflammation and repair of soft tissue injury
14.4.6.2.4. Applied pharmacology – principles of drug action, basic pharmacokinetics, use of drugs in musculoskeletal system
14.4.6.2.5. Applied radiology – basics, imaging of body parts
14.4.6.2.6. Principles of kinematics and kinetics, biomechanical analysis of various sporting activity
14.4.6.2.7. Principles of strengthening exercises, mobilization and application of neuromuscular facilitation techniques in sports


14.4.6.2.19. Sports massage

14.4.6.2.20. Emergency care and athletic first aid: cardio-pulmonary resuscitation, shock management, internal and external bleeding, splinting, stretcher use

14.4.6.2.21. Exercise therapy in post surgical management of sports injuries

14.4.6.2.22. Acute and overuse injuries to upper limb, lower limb, chest, abdomen and their management, common medical problems associated with sports person
14.4.6.2.23. Female specific problems, pediatric sports injuries
14.4.6.2.24. Principles of therapeutic massage, cryotherapy, heat therapy, manual therapy, techniques of functional bandaging
14.4.6.2.25. Effects of exercise on different systems, obesity and weight control, aging and exercise
14.4.6.2.26. Exercise training and prescription, high altitude training, special aids for performance enhancement, doping in athletes
14.4.6.2.27. Sports psychology – definition, emotions with reference to sports performance, personality of sports person

14.4.7. Physiotherapy in electrophysiology and electrodiagnosis
14.4.7.1. Objectives
14.4.7.1.1. This course shall enable the candidate to establish first contact Physiotherapy for electrophysiology and functional electrical stimulations. It will help to function as a consultant in the team of health professionals concerned with electrophysiology, electrodiagnosis, electromyography, nerve conduction velocities. The subspecialties are:
14.4.7.1.1.1. Clinical and kinesiological electromyography
14.4.7.1.1.2. Sensory and motor nerve conduction velocities
14.4.7.1.1.3. S D curve
14.4.7.1.1.4. evoked potential studies

14.4.7.2. Syllabus
14.4.7.2.1. Characteristics and components of electrotherapeutic stimulation systems and characteristic and components of electrophysiological assessment devices.
14.4.7.2.2. Electrotherapy and functional electrical stimulation
14.4.7.2.3. Muscle plasticity in response to electrical stimulation, instrumentation for neuromuscular electrical stimulation(NMES)
14.4.7.2.4. Neurobiology of afferent pain transmission and central nervous system mechanisms of pain modulation
14.4.7.2.5. Electrical stimulation and circulation
14.4.7.2.6. Clinical electrophysiological testing
14.4.7.2.7. bio-electricity (RMP – action potential)
14.4.7.2.8. Neurotransmitters. Synapse and synaptic transmission
14.4.7.2.9. Classification – muscle fiber, nerve fiber, motor unit
14.4.7.2.10. Propagation of nerve impulse and physiology of muscle contraction
14.4.7.2.11. Reflex – classification and properties
14.4.7.2.12. sensations – pathways and classification
14.4.7.2.13. type of nerve injury and Wallarian degeneration
14.4.7.2.14. applied electrotherapy –
   14.4.7.2.14.1. instrumentation electrodes
   14.4.7.2.14.2. EMG – normal and abnormal, application of NCV (sensory/motor, F wave, H reflex, blink reflex, SSEP)
14.4.7.2.15. Electrodiagnosis – clinical and kinesiological electromyography and evoked potential studies. Biophysical measurements, Physiotherapy modalities, techniques and approaches
14.4.7.2.16. Electrodiagnosis, conventional methods. Electromyography, sensory and motor nerve conduction velocities, spinal and somatosensory evoked potentials.
REFERENCE BOOKS

I year MPT

1. scientific basis of human movement – Gowitzke, Williams and Wilkins, Baltimore 1988 3rd edition
3. kinesiology – Brunnstrom Singe, F A Davis – Philadelphia 1966
8. elements of research in physical therapy – Currier D. P., Williams and Wilkins, Baltimore, 1990, Ed. 3
11. public power and administration – Wilenski, Hale and Iremonger, 1986
12. physical therapy administration and management – Hickik Robert J
13. management principles for Physiotherapists – Nosse Lorry J.
17. physical management of multiple handicapped – Fraser, Williams and Wilkins, Baltimore.
II year MPT

2. Electrodiagnosis in diseases of nerve and muscle – Kimura J, F A Davis Philadelphia
4. Chest Physiotherapy in intensive care unit – Makenzie, Williams and Wilkins, Baltimore
16. A clinical’s view of neuro muscle disorder – Brook M. H Williams and Wilkins, Baltimore, 1986
25. Soft tissue pain and disability – Cailliet Rene, Jaypee Brothers, New Delhi 1992
34. Clinical application of ventilatory support- Kinby, Churchill Livingstone, New York 1990
35. Cardio-Pulmonary Physiotherapy – Irwin C V, Mosby, St. Louis 1990
36. Pulmonary rehabilitation: guidelines to success – Hoidkins, Butterworth, Boston 1984
39. Physiotherapy in Obstetrics and gynecology – Polden and Mantle, Jaypee Brothers, New Delhi 1994
41. Industrial Therapy – Key G L, Mosby, St. Louis 1987
JOURNALS

1. Journal of Indian Association of Physiotherapy
2. Physical therapy (APTA, America)
3. Physiotherapy (CSP, London)
5. Physiotherapy (Canada)
6. Physiotherapy – Theory and Practice
7. Australian Journal of Physiotherapy
8. Clinical Kinesiology
9. Journal of biomechanics
10. American Journal of Sports Exercises
11. Pediatric physical therapy
12. Journal of rehabilitation – Research and Development
13. Archives of Physical Medicine and Rehabilitation
14. Journal of pediatric Orthopedics
15. Journal of neurological sciences
MODEL CHECKLIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS

Name of the student: __________________________________________________

Name of the faculty: __________________________________________________

Date: _____/_____/__________

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MODEL CHECKLIST FOR EVALUATION OF SEMINAR PRESENTATION

Name of the student:
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Name of the faculty:
________________________________________________

Date: _____/_____/_______

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Total score
MODEL CHECKLIST FOR EVALUATION OF WORK

Name of the student: __________________________________________________

Name of the faculty: __________________________________________________

Date: _____/_____/__________

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## EVALUATION OF CLINICAL PRESENTATION

Name of the student:  
________________________________________________

Name of the faculty:  
________________________________________________

Date: _____/_____/__________

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MODEL CHECKLIST FOR EVALUATION OF TEACHING SKILL PRACTICE

Name of the student: __________________________________________________

Name of the faculty: __________________________________________________

Date: _____/_____/

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<td>5</td>
<td>The use of practical examples &amp;/or illustrations</td>
<td></td>
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<tr>
<td>6</td>
<td>Speaking style (enjoyable, monotonous, etc. specify)</td>
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<tr>
<td>7</td>
<td>Attempts audience participation</td>
<td></td>
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<tr>
<td>8</td>
<td>Summary of main points at the end</td>
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<tr>
<td>9</td>
<td>Asks questions</td>
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<tr>
<td>10</td>
<td>Answer questions asked by the audiences</td>
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<tr>
<td>11</td>
<td>Rapport of the speaker with his audience</td>
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<tr>
<td>12</td>
<td>Effectiveness of the talk</td>
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<tr>
<td>13</td>
<td>Uses audio-visual aids appropriately</td>
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MODEL CHECKLIST FOR EVALUATION OF DISSERTATION PRESENTATION

Name of the student:

________________________________________________

Name of the faculty:

________________________________________________

Date: _____/_____/__________

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Points to be considered</th>
<th>Poor (0)</th>
<th>Below Average (1)</th>
<th>Average (2)</th>
<th>Good (3)</th>
<th>Very Good (4)</th>
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<tbody>
<tr>
<td>1</td>
<td>Interest shown in selecting topic</td>
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<tr>
<td>2</td>
<td>Appropriate review of literature</td>
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<td>3</td>
<td>Discussion with guide and other faculty</td>
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<tr>
<td>4</td>
<td>Quality of protocol</td>
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<td>5</td>
<td>Preparation of proforma</td>
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</table>

Total score
CONTINUOUS EVALUATION OF DISSERTATION OF DISSERTATION WORK
BY GUIDE

Name of the student:
________________________________________________

Name of the faculty:
________________________________________________

Date: _____/_____/__________

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Items for observation during presentation</th>
<th>Poor (0)</th>
<th>Below Average (1)</th>
<th>Average (2)</th>
<th>Good (3)</th>
<th>Very Good (4)</th>
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<tbody>
<tr>
<td>1</td>
<td>Periodic consultation with guide</td>
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<tr>
<td>2</td>
<td>Regular collection of case material</td>
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<tr>
<td>3</td>
<td>Depth of analysis / discussion</td>
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<tr>
<td>4</td>
<td>Departmental presentation of findings</td>
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<td>5</td>
<td>Quality of final output</td>
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<td>6</td>
<td>Others</td>
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<tr>
<td><strong>Total score</strong></td>
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