Syllabus
for
Bachelor of Physiotherapy
(BPT)

2014-15
4th Year
(BPT)
IV Year - BPT

Subjects
Transcript hours -1430

1) Physiotherapy in Musculoskeletal Sciences------------ 200 hrs
2) Physiotherapy in Neurosciences (including Adult, Paediatric, Psycho-somatic & Psychiatric /Mental health)-------- 210 hrs
3) Physiotherapy in Cardiorespiratory and General conditions200 hrs
4) Community Physiotherapy & Rehabilitation
   (Including Women’s Health, Geriatrics, Industrial Health
   (Ergonomics) & Health Promotion) ------------------------ 210 hrs
5) Bio-Engineering and Professional Practice----------- 70 hrs
   a. Bio-Engineering--------------------------------------- 30 Hrs
   b. Professional Practice------------------------------- 40 hrs
   (Including Ethics, Evidence Based Practice, Administration, Management & Marketing)

6) Supervised clinical practice + Project------------------540 hrs

   • Each Clinical assignment shall be of 70 hours at Indoor & 70
     hours at the Outdoor section (including 20 hours of Project)
     respectively in each of the subjects mentioned at 1, 2, & 3
     above.
   • Clinical assignments in Community P.T. shall be of 140 hours
     A] During each clinical assignment, the student shall functionally
        diagnose, plan & practice Clinical skills on patients in
        consultation with the experienced senior staff.
     B] Project Guidelines for IV BPT students – Final year students
        should carry out the retrospective study (project) under the
        subject Community physiotherapy and rehabilitation. Within two
        months of joining the final year, student should submit their
        project title after the approval from their respective guide.

The project should be written under the following headings.
   1. Introduction
   2. Aims and objectives of study
   3. Material and methods
   4. Results
Physiotherapy in Musculoskeletal Sciences  
(Total 200 hrs)

Theory – 60 hrs + Clinical 140 hrs

Objectives: This course is formulated on the “Problem based” method. At the end of the course, the candidate will –
1. Be able to identify, discuss & analyze, the Musculoskeletal Dysfunction in terms of Biomechanical, Kinesiology & Biophysical basis & correlate the same with the provisional diagnosis, routine radiological & Electrophysiological investigations & arrive at appropriate Functional diagnosis with clinical reasoning.
2. Be able to plan & Prescribe as well as acquire the skill of executing short & long term Physiotherapy treatment by selecting appropriate modes of Mobilization / Manipulations, Electro-Therapy, Therapeutic exercise & appropriate Ergonomic advise for the relief of pain, restoration / Maintenance of function & rehabilitation for maximum functional independence in A.D.L. at home & work place.

Syllabus-
Following topics are applicable to all the Musculo – skeletal conditions included in the various clinical subjects of Medical Sciences taught in III year BPT.

Must know –
1. Evaluation, interpretation of investigations & functional diagnosis (ICF) with appropriate clinical reasoning for planning & implementation of management techniques.
3. Application of appropriate electro therapeutic modes for relief of acute & chronic pain & swelling; wound healing, re-education with clinical reasoning.
5. Application of Advanced therapeutic modes of mobility like Mobilization Techniques (Techniques covered in IIIrd BPT.) (To be applied only on extremities), Friction Massage, Myofacial Release, Muscle Energy Techniques & Neuro Dynamic Techniques on patients. (Non-thrust mobilization methods only).
6. Application of various taping methods for support & relief of pain.
7. Posture Correction & Gait Training.
8. Application of appropriate Therapeutic exercise using therapeutic gymnastic tool as and when necessary, for the relief of pain, structural stability, strength/endurance & Functional restoration including gait training / maintenance of functions & for the preventive measures.

Desirable to know –

1. Prescription of appropriate Orthotic & prosthetic devices & fabrication of simple temporary splints.
2. Appropriate Home Program & Ergonomic advice for preventive measures & Functional efficiency at home & work place, Advice to Parents & Care Givers.

Physiotherapy management for the following conditions

Must know –

1. Fractures and dislocation of the spine, extremities – classification, management & complications. 7 Hrs

Specific fractures and dislocations
- PT assessment and management of upper limb fractures and dislocations.
PT assessment and management of lower limb fractures and dislocations including pelvis.
PT assessment and management of spinal fractures.
PT management in complications - early and late - shock, compartment syndrome, VIC, fat embolism, delayed and mal-union, RSD, myositis ossificans, AVN, pressure sores etc.
Principles of PT management in fractures - Guidelines for fracture treatment during period of immobilization and guidelines for treatment after immobilization period.

2. **Physiotherapy Management of Deformities** 4 Hrs
   - Congenital: CTEV, CDH, Torticollis, pes planus, pes cavus and other common deformities.
   - Acquired: scoliosis, kyphosis, coxa vara, genu varum, valgum and recurvatum.

3. **Infectious diseases of the bone & joints:** 2 Hrs
   - Osteomyelitis – acute and chronic
   - Septic arthritis and Pyogenic arthritis
   - TB spine and major joints - knee and hip

4. **Degenerative and Inflammatory conditions** 4 Hrs
   - Osteoarthritis - emphasis mainly on knee, hip and hand
   - Rheumatoid Arthritis
   - Ankylosing spondylitis
   - Gout
   - Perthes disease

5. Metabolic & hormonal disorders of the bone tissue - Osteoporosis. 2 Hrs

6. Management of Peripheral Nerve Injury 2 Hrs

7. Physiotherapy following re-constructive surgeries in Cerebral Palsy, Poliomyelitis and Leprosy. 2 Hrs
8. **Amputation** 4 Hrs
   - Definition, levels, indications, types, PT assessment, aims, management pre and post operatively.
   - PT management with emphasis on stump care and bandaging.
   - Prosthesis Prescription and Training

9. **Traction** 1 Hr
   Effect, Types, Modes, Indications, Contraindications, Dosage

**Regional Conditions**

10. **Spinal conditions** 5 Hrs
    PT assessment, aims, and management and home program of the following conditions
    - Cervical spondylosis
    - Lumbar spondylosis
    - Intervertebral disc prolapsed
    - Spinal canal stenosis
    - Spondylolisthesis
    - Spondylolysis
    - Coccydynia

**Soft tissue injuries and Sports Physiotherapy**

11. **Shoulder joint** 5 Hrs
    - TOS
    - RSD
    - Shoulder instabilities
    - Periarthritis Shoulder
    - Rotator cuff Tears : Conservative and Post-Surgical PT Management
    - Impingement syndrome (Supraspinatus and Bicipital tendonitis) - conservative and Post operative (sub-acromial decompression) PT management.
    - AC joint injuries- rehabilitation.

12. **Elbow and forearm** 1 Hr
    a. Tennis and Golfer's elbow
13. **Wrist and Hand**  
   - Wrist sprains.
   - Dequervain's tenosynovitis.
   - Trigger and Mallet finger
   - Repair of ruptured Flexor and Extensor tendons: Post operative PT management
   - Carpal tunnel syndrome.
   - Hand injury- types and their management

14. **Hip**  
   - Joint surgeries - hemi and total hip replacement- Post operative PT management

15. **Knee**  
   - ACL, PCL and MCL reconstruction surgeries - Post operative rehabilitation.
   - Meniscectomy and meniscal repair - Post operative management.
   - Pre patellar and Subacromial bursitis.
   - Anterior Knee pain : PFPS, Plica syndrome, patellar dysfunction and Hoffa's syndrome etc. - conservative management.
   - TKR- rehabilitation protocol.
   - Patellar tendon ruptures and Patellectomy- rehabilitation.

16. **Ankle and foot**  
   - Ankle instability: Lateral ligament sprain of ankle
   - Ligamentous tears- Post operative management.
   - TA rupture.
   - Plantar fasciitis, metatarsalgia, hammer toe, turf toe

17. **Others**  
   a. Hamstring strains
   b. Quadriceps contusion
18. **PT Management for** 1 Hr
   - Sacro-iliac joint dysfunction
   - Sacralisation
   - Lumbarisation,

**Desirable to know –**

1. **Orthopedic surgeries** 1 Hr
   Pre and post operative PT assessment, goals, precautions and PT management of following surgeries such as:
   - Arthrodesis
   - Osteotomy

**Nice to know**

1. Total shoulder replacement and Hemi replacement: Post operative PT management
2. Excision of radial head - Post operative PT management. 1 Hr
3. Radiological positions, angle calculations for Orthopaedic problems by X ray 1 Hr
4. Biomechanics of Internal fixators & implants. 2 Hrs
5. Physiotherapy Management for Tumours of the bone. 1 Hr

**CLINICAL**

Evaluation & treatment planning: its presentation & documentation of Minimum ten cases in the following heads –
1. Upper Limb (Including hand injury),
2. Lower limb Fractures.
3. Soft tissue lesion (any),
4. Spine Fractures with/without Neurological condition
5. Degenerative arthritis of skeletal joint
TEXT BOOKS
1. Clinical Orthopedic Rehabilitation – Brotzman
3. Therapeutic exercise – by Kolby & Kisner.
4. Fracture Rehabilitation- Stanley Hoppenfield
6. Essentials of Applied Physiotherapy – by Joshi / Kotwal
7. Essential Orthopaedics – By J. Maheshwari

REFERENCE BOOK
1. Orthopedic Physical therapy – by Donatelli.
3. Neural tissue mobilization – Butler
5. Outline of orthopedics – Adams Hamblen
6. Taping Techniques – by Rose Mac Donald.
7. Physical Rehabilitation Assessment and Treatment – O’Sullivan Schmitz

Scheme of Examination (Practical Examination) Total 80 Marks

1. Long Case: based on the History 10 marks, Evaluation 10 marks, Treatment Plan on Patient 20 marks (Total: 40 marks)
2. Short Case: Simulated (20 Marks)
3. Five spots: spots based on, X – ray (limb, spine), Orthosis, Prosthesis, Metal implants etc 3 minutes each spot and 3 marks per spot (3x5) (15 Marks)
4. Journal (5 Marks)
Physiotherapy in Neurosciences

(TOTAL 210 hrs)

(ADULT, PAEDIATRIC, PSYCHO – SOMATIC & PSYCHIATRIC CONDITIONS)
Theory – 70 hrs (including Pediatric Theory – 10hrs) + Clinical – 140 hrs (including Pediatric Clinical 20 hrs)

Objectives: At the end of the course, the candidate will –
1) Acquire the knowledge of normal neurodevelopment, with specific reference to locomotion
2) Be able to assess, identify & analyze Neuro-motor & psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements sensations / perception etc, E.M.G./ N.C. Studies & arrive at functional diagnosis with clinical reasoning.
3) Acquire the skills of application of P.N.F. technique on patients.
5) Be able to prescribe appropriate Orthosis / splints & will be able to fabricate temporary protective & functional splints.

Syllabus: -

MUST KNOW

1. Structure and function of Nervous System 3 Hrs
2. Theories of motor control & motor learning 2 Hrs
3. Neurological Assessment 8 Hrs
   Assessment of Cranial Nerves, dorsal column, reflexes, extra pyramidal system, normal development, motor system, co-ordination, functional abilities, neuropathic pain and investigations
4. Functional Diagnosis of Neuromuscular dysfunction 1 Hr

5. Understanding sensory system & Organization of sensory strategies for efficient motor output. 1 Hr

6. Skills of sensory – motor learning & Neuro-muscular skeletal training 1 Hr

7. Application of transfer & functional re-education exercises- Postural exercises, & Gait training 2 Hrs
   Assessment and Management of Neurological Gaits:
   - Hemiplegic Gait
   - Parkinson Gait
   - High step Gait
   - Hyperkinetic Gait
   - Hypokinetic Gait
   - Waddling Gait
   - Scissoring Gait
   - Myopathic Gait

8. Functional training in bladder dysfunction. 1 Hr

9. Application of skills of Co-ordination & Balancing exercises by using techniques based on Neuro-physiological principles 1 Hrs

10. Principles of Application of Neuro therapeutic skills like PNF, NDT, Brunnstrom & Rood ’s approaches. 2 Hrs

11. Principles and methods of using tools of Therapeutic gymnasium such as Vestibular ball, tilt board, bolsters, etc. in neurological conditions 2 Hrs

12. Evaluation and functional physiotherapy assessment with appropriate reasoning for planning and implementation of treatment technique for following neurological conditions:
i. Cerebrovascular Accidents: Hemiplegia, disorders of cerebral circulation & space occupying lesions such as cortical, thalamic & Brain-stem lesions 2 Hrs

ii. Cranial nerves- emphasis on 7th & 8th nerves, 1 Hrs

iii. Disorders of spinal cord 3 Hrs
   - Spinal Cord Injury
   - Syringomyelia,
   - Transverse myelitis
   - Spinal Dysraphism
   - Sub-acute combined degeneration of spinal cord

iv. Traumatic Head Injury 2 Hrs

v. Infections of Nervous System 4 Hrs
   - Meningitis
   - Encephalitis
   - Neurosyphilis
   - Tabes dorsalis
   - Poliomyelitis and Post Polio Residual Paralysis
   - Leprosy

vi. Demyelinating diseases of the nervous system 2 Hrs
   - Multiple sclerosis

vii. Lesions of Extra-pyramidal system & Basal ganglia 2 Hrs
   - Parkinson’s Disease
   - Spasmodic torticolis
   - Athetosis
   - Chorea & Dystonia

viii. Degenerative disorders 2 Hrs
   - Motor Neuron Diseases
   - Hereditary Ataxia
   - Peroneal muscle atrophy
   - S.M.A
ix. Disorders of peripheral nerves 2 Hrs
   • Tumours, Traumatic Nerve Injury, Infective & metabolic lesions of nerves

x. Disorders of muscles and neuromuscular junction 4 Hrs
   • Muscular Dystrophies
   • Myasthenia Gravis

xi. Polyneuropathy 2 Hrs
   • Classification of Polyneuropathies
   • GBS, Diabetic and Alcoholic Neuropathy

xii. Cerebellar & Co-ordination disorders 2 Hrs
    • Congenital Ataxia
    • Friedrich’s Ataxia

13. Paediatric Neurology 8 Hrs
    • Developmental milestones and Developmental reflexes
    • Neuro developmental screening tests
    • Evaluation & Management : History, Observation, Palpation, Milestone Examination, developmental reflex Examination, Higher mental function, Cranial nerve examination, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals
    • Use of various Neurophysiological approaches & Modalities in
      o High Risk babies
      o Minimum brain damage
      o Developmental disorders
      o Cerebral palsy
      o Autism
      o Down’s Syndrome
      o Hydrocephalus
      o Chorea
      o Spina bifida, and syringomyelia.
**DESIRABLE TO KNOW**

1. Parent / care takers education about handling of a paralytic patient [Paediatric & Adult]  **1 Hr**
2. Lifting techniques, Wheel chair modifications & adaptive devices  **1 Hr**
3. Disorders of autonomic nervous system  **2 Hrs**

**NICE TO KNOW**

1. Embryology of nervous system  **1 Hr**
2. Psycho-somatic Pain & Paralysis.  **1 Hr**
3. Fabrication of temporary splints during urgent requirement with clinical reasoning  **1 Hr**
4. Developing a philosophy for caring.  **1 Hr**

**CLINICAL**


**TEXT BOOK**

1] Cash’s Text book for Physio Therapists in Neurological disorders Jaypee brothers, Publication
2] Proprioceptive Neuro muscular Facilitation- by Herman Kabat
3] Practical Physical therapy by Margaret Hollis’
4] Therapeutic Exercise – by O’ Sullivan
5] “Right in the middle of stroke” by Patracia Devis
6] Stroke Rehabilitation by Margaret Johnson
7] Therapeutic Exercise by Carolyn Kisner & Colby
8] Physical Rehabilitation by Susan. B.O’ Sullivan
9] Tidy’s Physiotherapy by Stuart Porter
10] Neurological Rehabilitation by Darcy Umphred

**REFERENCE BOOK**

1] Therapeutic exercise by Basmajiian-5th edn.
2] Physical Rehabilitation by Krusen
3] Brain’s disorders of Nervous system
Scheme of Examination (Practical Examination)

Total 80 Marks

1. Long Case: - based on the History 10 marks, Evaluation 10 marks, Treatment Plan on Patient 20 marks. (40 Marks)
2. Short Case: - simulated case (20 Marks)
3. Five spots: - Spots based on EMG/NC Studies/Orthosis & Neuro assessment scale etc. 3 minute & 3 Marks each spot (3x5 =15 Marks)
4. Journal (5 Marks)
Physiotherapy in Cardiorespiratory and General Conditions

[INCLUDING CARDIO-VASCULAR & RESPIRATORY CONDITIONS]  TOTAL [200 HRS]

[Didactic-60 hrs & Clinical-140 hrs]

Objectives  At the end of the course, the candidate will -

1. Identify, discuss & analyze cardio-vascular & pulmonary dysfunction, based on Patho-physiological principles, & arrive at the appropriate functional diagnosis,

2. Acquire knowledge of rationale of basic investigative approaches in the medical system, & surgical intervention regimes related to cardio-vascular & pulmonary impairment.

3. Acquire the skill of evaluation & interpretation of functional capacity, using simple exercise tolerance tests, such as 6 minutes walk test, symptom limited test.

4. Be able to select strategies for cure, care & prevention; adopt restorative & rehabilitative measures for maximum possible functional independence of a patient at home, work place & in community.

5. Be able to execute the effective Physio Therapeutic measures [with appropriate clinical reasoning] with special emphasis to Breathing retraining, nebulization, humidification, bronchial hygiene, General mobilization, & Exercise conditioning.

6. Acquire knowledge of the overview of patients’ care at the Intensive care area, artificial ventilation suctioning, positioning for bronchial hygiene, & continuous monitoring of the patient at the Intensive care area.

7. Acquire the skill of basic Cardio – pulmonary resuscitation.

8. Be able to execute the effective Physio therapeutic measures with appropriate clinical reasoning to improve general surgical & medical condition.
Syllabus: -

Must Know –

1. Assessment of Cardio-Vascular and Respiratory system 1 Hr
2. Anatomical and Physiological differences between the Adult and Paediatric lungs 1 Hr
3. Interpretation of radiological & Biochemical Investigations & correlate the same with clinical findings 2 Hrs
4. Functional diagnosis of cardio respiratory dysfunction (ECG, PFT, serum enzymes, ABG) 2 Hrs
5. Physiotherapy techniques to increase lung volume 2 Hrs
   - Positioning and Mobilization
   - Breathing exercises
   - Neurophysiological Facilitation of Respiration
   - Mechanical aids - Incentive Spirometry, CPAP, IPPB
6. Physiotherapy techniques to decrease work of breathing 2 Hrs
   - Energy Conservation
   - Positioning
   - Breathing re-education – Breathing control techniques
   - Mechanical aids – IPPB, CPAP, BiPAP
7. Physiotherapy techniques to clear secretions 2 Hrs
   - Hydration, Humidification & Nebulisation,
   - Mobilisation and Breathing exercises
   - Postural Drainage
   - Manual techniques – Percussion, Vibration and Shaking, Rib Springing, ACBT, Autogenic Drainage
   - Mechanical Aids – PEP, Flutter, Acapella, RC Cornet, IPPB
   - Facilitation of Cough and Huff
   - Suctioning
8. Drug Therapy 1 Hr
9. Patterns of Lung Disorders & their PT Management 7 Hrs

10. Physiotherapy following Lung Surgeries 2 Hrs

11. Pulmonary Rehabilitation 2 Hrs

12. Intensive care unit 7 Hrs
   a. Assessment of the critically ill patients
   b. Monitoring in the ICU
   c. Physiotherapy in the ICU – Common conditions in the ICU – Head Injury, Pulmonary Oedema, Multiple Organ Failure, Neuromuscular Disease, Poisoning, Aspiration, ARDS, Shock etc
   d. Dealing with Emergency situations in ICU
   e) NICU / PICU treatment & rehabilitation.

13. O₂ therapy and Mechanical Ventilation 2 Hrs

14. Physiotherapy management for cardiac disorders 3 Hrs

15. Physiotherapy for Cardiac Surgeries (including Critical Cardiac Care) 3 Hrs

16. Cardiac Rehabilitation 2 Hrs

17. Cardio-pulmonary resuscitation. 1 Hr

18. Physiotherapy intervention in the management of Medical and Surgical Oncology Cases 2 Hrs

19. PT Management of Abdominal Surgeries 2 Hrs

20. Prescription of home program & ergonomic advice & parent’s education in case of paediatric cases with reference to energy cost. 1 Hr

21. Assessment PT Management following Peripheral vascular diseases. 2 Hrs
22. Management of wounds and ulcers, Diabetes and its complications  
   • Care, electrotherapeutic measures  
   • Care of surgical scars-U.V.R and other electrotherapeutics for healing of wounds, prevention of Hypergranulated Scars, Keoloids,  
   • Electrotherapeutics measures for relief of pain during mobilization of scars tissues  

23. Burns management  
   Role of physiotherapy in the management of burns,  
   Post grafted cases  
   Mobilization and Musculoskeletal restorative exercises following burns  

24. Treatment of Lymphoedema  

25. Physiotherapy in dermatology  
   • U.V.R therapy in various skin conditions; Vitiligo; Hair loss; Pigmentation; Infected wounds ulcers.  
   • Faradic foot bath for Hyperhydrosis.  
   • Care of anesthetic hand and foot  

Desirable to Know -  
1. Cardiorespiratory changes associated with ageing & fitness programme.  
2. Familiarization with concept of Quality of life  
3. Precautions with HIV

Nice to know –  
1. Outcome Measures in Cardio-vascular & Pulmonary Conditions  

CLINICAL -  
1] Skill to palpate all pulses, rhythm, rate, volume & Heart rate/pulse rate discrepancy  
2] Skill to assess B.P. at various sites, & its Physiological variation, & to assess Ankle- Brachial Index
3] Skill of exercise testing- a]-6/12 min walk, b]-symptom limited,
4] Interpretation of a]tread mill & Ergo-cycle test findings
   a.  ECG.-,I.H.D. & Blocks,
   b.  Biochemical analysis-serum enzymes, C.P.K levels, L.D.H.,
        S.G.O.T., S.G.P.T., Troponin T, Lipid profile, electrolyte
        balance
   c.  Chest X-ray-
   d.  P.F.T.-obstructive/ restrictive/reversibility,
   e.  A.B.G.-
   f.  R.P.E.-Borge`s scale
   g.  Quality of life questionnaires

5] Evaluation & treatment planning, presentation & documentation
   of TEN cases in-
   a.  Medical Respiratory condition,
   b.  Paediatric respiratory condition
   c.  Thoracic Surgical condition,
   d.  Cardiac Medical condition,
   e.  Cardiac Surgical condition
   f.  Peripheral vascular disorders
   g.  Abdominal surgical condition
   h.  Mastectomy / Amputation

TEXT BOOKS -
1.  Cash`s Text book for Physiotherapists in Chest, Heart &
    Vascular diseases -Jaypee bros. Publication
2.  Cash`s text book in General Medical & Surgical conditions for
    Physio therapists
3.  Chest Physical therapy & Pulmonary rehabilitation-by Donna
    Frownfilter
4.  Brompton`s hospital guide
5.  Physical Rehabilitation - O`sullivan

REFERENCE BOOK -
1.  Physio Therapy in Cardio- Vascular rehabilitation-Webber
2.  Exercise & the Heart –Wenger
3.  ECG by P.J. Mehta,
4.  J. Hampton (Hand book of ECG made easy)
5.  Cardiopulmonary Physical therapy by Irwin Scott.
6.  Physiotherapy in respiratory care – Alexandra Hough
Scheme of Examination (Practical Examination) Total 80 Marks

1. Long Case:- based on the History 10 marks, Evaluation 10 marks, Treatment Plan on Patient 20 marks. (Total 40 Marks)
2. Short Case :- simulated (20 Marks)
3. Five spots: - Spots based on ABG/X – ay / ECG / PFT / RPE / Bruce, protocol etc. 3 minute each spot (3x5 =15 Marks)
4. Journal (5 Marks)
COMMUNITY PHYSIOTHERAPY & REHABILITATION

(210 hrs)

WOMEN 'S HEALTH -----didactic – 20 hrs------clinical -----25hrs
GERIATRICS HEALTH----didactic – 20 hrs-------clinical -------25hrs
INDUSTRIAL HEALTH {ERGONOMICS}---- didactic – 10 hrs ------clinical ---20 hrs
HEALTH PROMOTION & CBR -----------didactic – 25 hrs--------clinical -----25hrs
PROJECT ------------------------------------------- ---------------------40 hrs

Objectives:
At the end of the course the candidate will:
A. Be able to describe:
   i. The general concepts about health, disease and physical fitness.
   ii. Physiology of aging process and its influence on physical fitness.
   iii. National policies for the rehabilitation of disabled – role of PT.
   iv. The strategies to access prevalence and incidence of various conditions responsible for increasing morbidity in the specific community – role of PT in improving morbidity, expected clinical and functional recovery, reasons for non-compliance in specific community environment solution for the same.
   v. The evaluation of disability and planning for prevention and rehabilitation.
   vi. Community Based Rehabilitation in urban and rural set up.
B. Be able to identify with clinical reasoning the prevailing contextual (e.g. environmental and psycho-social cultural) factors, causing high risk responsible for various dysfunctions and morbidity related to sedentary life style and specific community like women, children, aged as well as industrial workers and describe planning strategies of interventional policies to combat such problems.
C. Be able to conduct as small project {cross sectional study /survey} to access to the prevalence of specific physical health problem and /or morbidity in specific community – which may be based at the institutional level or in field.
Syllabus: -

1) Women’s Health: -

Must Know –
- Anatomy of pelvic floor 1 Hr
- Anatomical and physiological variations associated with pregnancy and menopause. 3 Hrs
- Antenatal, perinatal and postnatal physiotherapy and PT advice on labour positions, pain relief and PT Management of various problems faced in this period 5 Hrs
- Uro-genital dysfunctions: Infections, prolapse, Polycystic Ovarian Disease, incontinence and their therapeutic interventions. 4 Hrs
- Common Gynaecological surgeries and role of physiotherapy 2 Hrs
- Physical fitness in women during pregnancy & menopause. 2 Hrs
- Radical mastectomy and therapeutic intervention. 1 Hr

Desirable to Know –
- Social issues having impact on Physical function. 1 Hr

Nice to know –
- Legal rights & benefits for women. 1 Hr

2) Geriatrics: -

Must Know –
- Theories of Aging. 1 Hr
- Anatomical and Physiological changes of aging in 7 Hrs
  1. Musculoskeletal system.
  2. CNS.
  3. CVS.
4. RS.
5. Metabolic, Endocrine, Immune System

- Assessment in geriatrics.  
- Role of physiotherapy in geriatrics fitness (Institutionalized & Community dwelling elders)  
- Role of PT in: Half-way homes, Residential Homes, Meals on wheels, Home for the aged, etc
- Falls and its prevention in Geriatrics.  
- Rehabilitation for Parkinson’s disease, Alzheimer’s, Dementia, Incontinence, stroke etc.
- Ethics, Legal Rights and benefits for geriatric Rehabilitation

3] Industrial Health: -

Must know –

I – Ability Assessment  
Job description
Job demand analysis
Task analysis
Ergonomic evaluation
Injury prevention
Employee fitness programme

II – Disability management –
Acute case
Concept of functional capacity assessment
Work conditioning
Work hardening

III – Environmental stress in the industrial area
Occupational Hazards:  
a. Physical agents- Heat, cold, light, noise, Vibration, U.V. radiation, Ionizing radiation,
b. Chemical agents-Inhalation, local action & ingestion,

c. Mechanical hazards- overuse, fatigue.
d. Psychological hazards – monotonic, dissatisfaction in job, anxiety of work completion with quality, mechanical stress in various occupations for eg.

- Sedentary table work – eg. in executives, clerk,
- Inappropriate seating arrangement – eg. vehicle drivers
- Constant standing – eg. watchman, Defense forces, surgeons,
- Over – eg. exertion in laborers.

e. Biological Hazards

IV] Role of P.T. in industrial set up & Stress management with relaxation mode. 1 Hr
V] Vocational Training and Rehabilitation 2 Hr
VI] Industrial Laws: Legal Right and benefits 1 Hr

4) Fitness & Health Promotion

Must know –
- Physiological effects of aerobic and anaerobic exercise. 2 Hrs
- Assessment of Fitness 2 Hrs
- Fitness training and clinical reasoning for advocating aerobic exercise as preventive measures in special population: 6 Hrs
  - Elderly
  - Women
  - Children
  - Obesity
  - Diabetes Mellitus
  - Renal Failure
  - Hypertension
- De-conditioning effects of prolonged bed rest. 1 Hr
- Exercise Testing & Prescription 1 Hrs

5) Community Health -

Must know -
- WHO definition of health & disease, Health care delivery system – 3 tier System 1 Hr
- Rehabilitation: definition, types and Team 1 Hr

148
Community: Definition, Community based approach, 1 Hr
Community entry strategies, Community initiated v/s Community oriented programme

Introduction to CBR: Definition, Historical review, Concept, Need, Objectives, Scope, Members, Models CBR strategies in Health Promotion Urban area – 2 Hrs
- UHC – Community centre, clubs, mahila mandals, social centers.
- Schools, Industries, Sport centers.
Rural area by using PHC, rural hospital, district hospital.

Principles of CBR, Difference between Community v/s Institutional Based Rehabilitation, Extension services and mobile units: Introduction, Need, Camp approach 2 Hr

Planning and management of CBR programme 1 Hr

Disaster management and role of PT 1 Hr

Disability : Evaluation, types & prevention & role of physiotherapy 2 Hrs

National policies for rehabilitation of disabled, Architectural barriers for disabled and their modifications 1 Hr

Role of Physiotherapy in CBR 1 Hr
- Prescribing exercise programme
- Rehabilitation programmes for various neuromusculoskeletal and cardiothoracic disabilities.

Clinical Posting /Visits to UHC, PHC.
- Project-Survey in any one community
- Evaluation and treatment planning, presentation and documentation of minimum TEN cases in
  o Obstetrics
  o Gynaecology
  o Geriatrics

149
Text Books
3. Therapeutic Exercise – By Kisner & Colby.
5. Geriatrics Physiotherapy – By Andrew Guccione.
6. Industrial Therapy – by Glenda Key
7. Preventive & Social Medicine – by Park

Reference Books -
2. Exercise Physiology-by Mc 'Ardle.
5. Disability 2000 - RCI.
8. Training in the Community for the people with disability – by Hallender Padmini Mendes.

SCHEME OF EXAMINATION (PRACTICAL EXAMINATION)
TOTAL 80 MARKS
1. Long Case – Women’s Health / Geriatric/Industrial Health / Health Promotion (Marks 40)
2. Short Case – simulated based on community health problem (Marks 20)
3. Project Presentation and Viva (Marks 15)
4. Journal (Marks 5)
Bio-Engineering and Professional Practice
(70 hrs)

SECTION – I
Bio-Engineering
[Didactic 20 hrs + Practical/Laboratory - 10 hrs]

Objectives: - At the end of the course, the candidate shall.
1. Acquire knowledge about biomechanical principles, of application of variety of aids & appliances used for ambulation, protection & prevention.
2. Acquire knowledge about various material used for splints / Orthosis & prosthesis--selection criteria.
3. Acquire the skill of fabrication of simple splints made out of low cost material

Syllabus

Must know –
1. Classification of Aids & appliances. 1 hr
2. Biomechanical principles in designing of appliances 1 Hr
3. Knowledge of various component of prosthesis & orthosis. 6 hrs

Assessment procedures for static & dynamic alignment of the following:
Aids & appliances, Splints, Orthosis for spine, upper & lower limb, Prosthesis for Lower limbs & Upper limbs. 2 hrs

4. Prescription and designing of footwear and modifications 1 Hr
5. Assessment of Gait post Prosthetic / Orthotic (Lower Limb) fitting. 3 hrs
6. Designing and construction of adaptive devices 1 Hr
Desirable to know –
1. Care of prosthesis & orthosis. 1 hr
2. Methods of donning & doffing. 1 hr
3. Decision making for prosthetic fitting 2 hrs

Nice to know –
1. Psychological aspect of orthotic and prosthetic application 1 hr

Project– 10 hrs
To fabricate one Temporary splint in each by using P.O.P, aluminum strips, sheets, wires, rubber bands, rexin, orfit etc.
1. Cock up [dorsal / volar]
2. Outtrigger.
3. Opponence splint.
4. Anterior and posterior guard splints for gait training.
5. Foot drop splint.
6. Facial splint.
7. Mallet Finger Splint.
8. C bar for 1st web space of hand

Text Books –
1. Amputation & prosthetic - Bella may.
3. Orthotic in Rehabilitation – McKee / Morgan
4. Physical rehabilitation- Susan. B.O’ Sullivan
SECTION - II
Professional Practice
(Including Ethics, Evidence Based Practice, Administration, Management & Marketing)
[40hrs]

Objectives:
This course is aimed to enable the candidate to acquire the knowledge of ethical code of professional practice, as well as its moral & legal aspects; & role of W.H.O.&W.C.P.T. Also, at the end of the course the student will acquire the knowledge of the basics in Managerial & Management skills, & use of Information technology in professional Practice

Contents:
1. Concepts of morality, Ethics & Legality-rules of professional conduct & their Medico-legal & moral implications-The need of Council Act for Physiotherapy. 5 hrs
2. Constitution & Functions of the Indian association of Physical therapy- 4 hrs
3. Functioning of the World Confederation of Physical therapy [W.C.P.T.] & its various branches-Special Interest groups [brief] 5 hrs
4. Role of W.H.O.& WCPT 4 hrs
5. Introduction to Evidence Based Practice: Definitions, Evidence Based Physiotherapy Practice 2 Hrs
6. Management studies related to–local health care organization management & structure- planning delivery with quality assurance & funding of service delivery–information technology -Time management - career development in Physiotherapy. 4hrs
7. Administration - principles-based on the Goal & functions - at large hospital set up / domiciliary services/private clinic /academic. 4 hrs
8. Methods of maintaining records. 4 hrs
9. Budget-planning. 4 hrs

10. Performance analysis—physical structure/reporting system [man power/status/functions/quantity & quality of services/turn over-cost benefit/revenue contribution]. 4 hrs

**SCHEME OF EXAMINATION (THEORY ONLY)**

**Pattern of Internal Assessment Examinations**

1] Terminal Theory - 80 marks

2] Prelim Theory - 80 marks

(same as the university examination pattern.)

Total - 160 marks

Internal Assessment to be calculated out of 20 marks

**SCHEME OF EXAMINATION IN THE SUBJECT**

“Bio-Engineering”

#-Bioengineering – 40 marks + Professional Practice – 40 marks = 80 marks + I.A. – 20 marks = Total 100 marks

Section A - M. C. Q. Based on Single best answer in MUST KNOW area - time 20 mins.

Q-1 Based on Bioengineering [1 x 10]--------------------10 marks

Q-2 Based on Professional Practice [1 x 10]------------------------10 marks

Section B - Based on Bioengineering

Q-3 Answer Any FIVE out of Six [5 x 3] ------------------------15 marks

Q-4 L.A.Q.--------------------------------------------------------15 marks

OR

Q.4 L.A.Q.--------------------------------------------------------15 marks

Section C Based on Professional Practice

Q-5] Answer Any FIVE out of Six [5 x 3] ------------------------15 marks

Q-6] L.A.Q.--------------------------------------------------------15 marks

OR


154
SCHEME OF EXAMINATION (Theory)

All the following subjects shall follow the same patterns of examination:

1. Physiotherapy in Musculoskeletal Condition
2. Physiotherapy in Neurosciences
3. Physiotherapy in Cardiorespiratory and General Conditions
4. Community Physiotherapy and Rehabilitation

THEORY - 80 MARKS; I.A.- 20 MARKS; TOTAL 100 MARKS
CLINICAL - 80 MARKS; I.A - 20 MARKS TOTAL – 100 MARKS

1] THEORY-Pattern of Paper setting ----------------------80 marks

Section-A
M.C.Q Q-1 ].-[20 X 1 ] Single best answer ----------------------20 marks

Section-B
S.AQ.Q-2 ].-Answer any FIVE out of Six —[5 x 3 ] -----------15 marks
Q-3 ].-Answer any THREE out of Four-[3 x5 ] -----------15 marks

#Section —C
L.AQ.-Q-4 ] ---------------------------------------15 marks
Q-5 ] ----------------------------------------------15 marks

OR
Q-5 ] ----------------------------------------------15 marks

# In the subject “Physiotherapy in Cardiorespiratory and General Conditions”-
L.A.Q -Q-4 in THEORY paper should be based on
“P.T. in Cardiovascular OR Pulmonary condition ”

2] PRACTICAL – Pattern given after each subject
INTERNAL ASSESSMENT
THEORY ----------------------20 marks
CLINICAL ----------------------20 marks
THEORY

All the following subjects shall follow the same pattern of examination

1. Physiotherapy in Musculoskeletal Sciences
2. Physiotherapy in Neurosciences
3. Physiotherapy in Cardiorespiratory and General Conditions
4. Community Physiotherapy & Rehabilitation

One terminal & one preliminary examination of 80 marks each
[Section A (20 marks) Section B (30 marks) Section C (30 marks)]
Based on pattern of University Examination

CLINICAL/PRACTICAL

One terminal & one preliminary examination of 80 marks each
Based on pattern of University Examination

1] Physiotherapy in Musculoskeletal Sciences
2] Physiotherapy in Neurosciences
3] Physiotherapy in Cardiorespiratory and General Conditions

1. Long case – based on the History 10 marks, Evaluation 10 marks, Treatment Plan on patient 20 marks (Total 40 Marks)
2. Short case – simulated (20 Marks)
3. Spots – (3x5 = 15 Marks)
4. Journal (5 Marks)

4] Community Physiotherapy & Rehabilitation

1) Long Case – Women’s Health /Geriatric/Industrial Health /Health Promotion (40 Marks)
2) Short Case – simulated based on community health problem (20 Marks)
3) Project Presentation /Viva /Short case (20 Marks)
4) Journal (5 Marks)

Internal assessment marks should be calculated out of 20 marks in theory and 20 marks in practical.
### IV BPT University Examination Pattern

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<tr>
<th>Subject</th>
<th>Theory</th>
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<td>2) Physiotherapy in Neurosciences</td>
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<td>3) Physiotherapy in Cardiorespiratory and General Conditions</td>
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<td>4) Community Physiotherapy &amp; Rehabilitation</td>
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<td>5) Bio-Engineering and Professional Practice</td>
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