

CMJ UNIVERSITY, SHILLONG

REGULATION FOR BACHELOR IN PHYSIOTHERAPY (B.P.T.)

Duration – Four Years

Eligibility - 10+2 with Biology

Scheme of Distribution of Marks

Sr. No.	First Year	Internal Assessment Marks	Term End Examination	Total Marks	Passing Marks
1	Enzymology	30	70	100	40
2	Human Anatomy	30	70	100	40
3	Human Physiology	30	70	100	40
4	Biochemistry	30	70	100	40
5	General Microbiology	30	70	100	40
6	Biomechanics	30	70	100	40
Sr. No.	Second Year	Internal Assessment Marks	Term End Examination	Total Marks	Passing Marks
1	Pharmacology	30	70	100	40
2	Immunology	30	70	100	40
3	Electrotherapy	30	70	100	40
4	Exercise Therapy	30	70	100	40
5	Ecology And Environment	30	70	100	40
6	Biostatistics And Computer application	30	70	100	40

Sr. No.	Third Year	Internal Assessment Marks	Term End Examination	Total Marks	Passing Marks
1	Microbiology	30	70	100	40
2	Communication Skills	30	70	100	40
3	Rehabilitation	30	70	100	40
4	Orthopadeics	30	70	100	40
5	Obstetrics And Gynecology	30	70	100	40
Sr. No.	Fourth Year	Internal Assessment Marks	Term End Examination	Total Marks	Passing Marks
1	Physiotherapy in Orthopedic Conditions	30	70	100	40
2	Physiotherapy in Neurological Conditions	30	70	100	40
3	Physiotherapy In Medical & Surgical Conditions (Including Cardio-Vascular & Respiratory Conditions)	30	70	100	40
4	Physiotherapy In Sports Injuries	30	70	100	40
5	Community Physiotherapy & Disability Management	30	70	100	40

BACHELOR OF PHYSIOTHERAPY (Second year)

ENZYMOLOGY

BPT 101

UNIT-I

Enzymes, Specificity of Enzyme action, Determination of the Catalytic Activity of Enzymes – Factors influences Enzyme activity, Assay Techniques, Enzyme Kinetics, The Michaelis-Menten Equation, Analysis of Kinetic Data

UNIT-II

Derivations of Michaelis - Menten Equation Variants, Michaelis- Menten Equation for eversible reactions-equation, Enzyme Inhibition, Reversible Inhibition, Irreversible Inhibition, Competitive and Non-competitive

UNIT-III

Bisubstrate Reactions, Types of Bi-Bi Reactions, Immobilized Enzyme, Immobilization Techniques, Effects of Immobilization on Enzyme, Advantage of Immobilization, Kinetics of Immobilized Enzymes, Uses of Immobilized Enzymes

UNIT-IV

Microbial Production of Enzymes, Strain improvement, Fermentation, Isolation, Extraction and Purification of Enzymes, Extraction of membrane bound enzymes, Extraction of soluble enzymes

UNIT-V

Biological Roles of Enzymes-Application of the enzymes in industry-Syrup manufacturing, Micro organisms used for cheese production, food processing, fruit juices, beer, distilled alcoholic drinks and their function

HUMAN ANATOMY

BPT 102

UNIT-I

History of anatomy-the cell-the tissues-epithelial tissue-connective tissue-muscular tissue-nervous tissue-membranes-glands

UNIT-II

Organs of the body-systems of the body-body fluids-skeletal system-Development and growth of bones-bones of the skull-bones of the face-bones of upper limb-bones of wrist and hand-bones of thorax-bones of the pelvic girdle-bones of lower limb-bones of foot

UNIT-III

Joints of the skeleton-joints of upper limb-joints of lower limb-joints disorders-blood Disorders of blood-disorders of clotting-lymphatic system-reticulo-endothelial system

UNIT-IV

Cardiovascular system-the veins-cardiovascular disorders-disorders of blood vessels-disorders of blood pressure-respiratory system

UNIT-V

Urinary System-formation of urine-diseases of the urinary system -the muscular system-muscles of shoulder girdle-muscles of upper limb-muscles of thorax -muscles of abdomen-muscles of the back -muscles of perineum -muscles of thigh -diseases of muscles

HUMAN PHYSIOLOGY

BPT 103

UNIT I

Blood – Function, composition, coagulation, factors affecting coagulation; Development and functions of RBC, WBC and platelets; Haemoglobin – functions and synthesis; Blood groups

UNIT II

Cardiovascular system – Structure of heart, special functional tissues of heart, origin and conduction of heart beat, cardiac cycle, cardiac output; Blood pressure – Measurement and factors affecting blood pressure.

UNIT III

Respiratory system – Definition, process of respiration, structure & functions of respiratory tract, mechanism of breathing, lung volumes, lung capacities, oxygen and CO₂ transport; Definitions of diffusion, perfusion, anoxia, dysbarism, asphyxia, hyperpnoea, orthopnoea and cyanosis;

Special senses – Taste – primary taste sensations, histology of tastebuds, factor influencing taste sensations; Smell – Classification of odour, physiology of olfaction.

UNIT IV

Digestive system – Structure and functions of digestive system; digestive juices – composition and function, digestion and absorption of foodstuffs – carbohydrate, protein and lipids; Urinary system – structure and functions of kidney, formation of urine, factors affecting formation of urine, micturition, nocturia, oliguria and anuria.

UNIT V

Reproductive system – Structure and functions of male and female reproductive system, menstrual cycle; Endocrine system – Functions of hormones secreted by pituitary, thyroid, parathyroid, adrenal and reproductive glands.

BIOCHEMISTRY

BPT 104

UNIT – I

Carbohydrates : - Monosaccharides and Disaccharides – Definition, classification, structure, properties and biological significance, Polysaccharides – Types and biological importance.

UNIT – II

Amino acids – classification, essential and Non-essential amino acid, structure and properties. Proteins – Definition, classification and function. Structure levels of organization. Denaturation and Renaturation.

UNIT – III

Enzymes: Definitions, classification with example, Active site, Lock and key model, Induced fit hypothesis. Enzyme units. Kinetics factors affecting enzyme activity, M.M. equation, LB. Plot, Enzyme inhibition.

UNIT – IV

Lipids: Classification of lipids, physical and chemical properties, saturated, unsaturated fatty acids and steroids. Structure of cell membrane and Transport. **Vitamins:** Classification, occurrence, deficiency symptoms, Biochemicals functions of fat soluble and water soluble vitamins.

UNIT – V

Buffers – Definition, important buffers in blood (Bicarbonate, phosphate and hemoglobin buffer systems), Bioenergetics: Laws of thermodynamics, Hormones: - Definition, classification of hormones, Biological functions and disorders of pancreatic hormone (Insulin), thyroid hormone (thyroxin),

GENERAL MICROBIOLOGY

BPT 105

Unit-I

Origin and evolution of Microbiology - Contribution of Early Microbiologists- Classification of Microorganisms - Hackel three kingdom concepts - Whittaker's five kingdom concepts- Classification and salient features of bacteria according to the Bergey's manual of determinative bacteriology- Cyanobacteria

Unit-II

Microscopy - Simple-Compound, Dark-field, Phase contrast, Fluorescent and Electron microscopes-SEM,TEM, Freeze fraction confocal microscopy and their applications - Stains and Staining reactions- Simple, Differential and special attaining techniques.

Unit-III

Bacterial Anatomy - Structure-properties and biosynthesis of cellular components of bacteria. Culture media and Culture methods-Aerobic and Anaerobic- Preservation method, sporulation and its mechanism.

Unit-IV

Bacterial physiology - Growth-factors- nutritional requirements for bacterial growth. Bacterial metabolism -Respiration- Fermentation-Photosynthesis.

Unit-V

Microbial pathogenicity - Toxins-Characterization -mode of action-Antimicrobial chemotherapy -Antibiotics - Classification - Mode of action-drug resistance-Sensitivity tests - Sterilization and disinfection - methods and quality control.

BIOMECHANICS

BPT 106

Unit – I

Motion – Galileo’s Study on the Motion of Objects, Newton’s Law of Motion, Force – Balanced Forces, Unbalanced Forces, The Universal Law of Gravitation, Velocity – Acceleration, Friction – The Laws of Friction

Unit – II

Work, Energy, Power, Scalar and Vector Quantities, Torque

Unit – III

Rotation, Body Movements, Normal Human Locomotion – Measuring the External Forces, Pathological Gaits or Abnormal Walking – Requirements for the Gaits, ADL – Scope of ADL in Rehabilitation, Goals of Self-Help Devices (SHD)

Unit – IV

Prosthesis – Principles of Prosthetics, Lower Extremity Prosthesis, Upper Limb Prosthesis – Partial Hand Amputation and Prosthesis, Spinal Orthotics – Functions and Basic Components of Spinal Orthotics, Classification

Unit – V

Orthotics – Functions and Principles, Upper Limb Orthoses – Hand and Wrist Orthoses, Elbow and Shoulder Orthoses, Lower Limb Orthoses – Ankle Foot Orthoses, Knee Orthoses, Hip Orthoses, Foot Orthosis – Flat Foot Shoe,

BACHELOR OF PHYSIOTHERAPY (Second year)

PHARMACOLOGY

BPT 201

UNIT-I

Hospital Pharmacy Definitions, function, classifications based on various criteria, organization, management and health delivery system in India -Drug distribution System

UNIT-II

Manufacturing in Hospital Pharmacy-Quality control and quality Assurance-Hospital Equipment and Health Accessories

UNIT-III

Pharmacy and therapeutics committee-Drug Information and Drug Information Bulletin-Surgical Supplies-computers in Pharmacy

UNIT-IV

Clinical Pharmacy-An Introduction to clinical Pharmacy-Modern dispensing aspects-Pharmaceutical care-Common Medical Terminology

UNIT-V

Clinical Significance Of Some Physiological Parameters -Blood Tests-Blood Sugar-Liver Function Tests-Blood Electrolytes-Urine Analysis-Renal Function Tests-Some Important Cardiovascular Parameter

IMMUNOLOGY

BPT 202

UNIT-I

Historical perspectives -Overview of immune system-Innate and acquired immunity. -Immune system structure and organization.

UNIT – II

Antigen and antigenicity-Immunoglobulins – Structure and function-Complements-Antigen – Antibody interaction-Monoclonal antibodies.

UNIT – III

Organization and expressions of immunoglobulin genes-Histocompatibility complex.

UNIT – IV

Cytokines: Types and function-Cytokine receptors Biological functions of cytokines-Cell mediated immunity- receptors -T cell activation-Humoral response-B cell activation and proliferation-Hypersensitive reactions.

UNIT – V

Immune regulation-Autoimmunity-Vaccines and immune response to infectious diseases-Immune deficiency diseases (AIDS)-Immune suppression -Transplantation.

ELECTROTHERAPY

BPT 203

UNIT-I

Physics and Basic Electrical Equipments-Introduction-Theory-Working

UNIT-II

Electrical Stimulation of Nerve and Muscle-Faradic-type current-Interrupted direct current-
Electro diagnosis-Interferential therapy

UNIT-III

Methods of Heating the Tissues-Physiological effect of heat-Short-wave diathermy-Infra-red
radiation-Microwave diathermy-Electric heating pads-Paraffin wax

UNIT-IV

Introduction to Ultrasonic Therapy-Ultra-violet Radiation-Cold Therapy

UNIT-V

Introduction to Mechanics-Physics of Exercise in Water

EXERCISE THERAPY

BPT 204

UNIT-I

Introduction to Mechanics-Introduction to Exercise Therapy-Examinations- Goniometry

UNIT-II

Starting and Derived Position-Relaxation-Pelvic Tilt-Active and Passive Movements-Relaxed Passive Movement

UNIT-III

Introduction to Peripheral joint Mobilization-Theory-Methods

UNIT-IV

Stretching-Functional Re-education Training

UNIT-V

Introduction to Suspension Therapy-In coordination (Asynergia)-Mobility Aids-Gait

ECOLOGY AND ENVIRONMENT

BPT 205

UNIT-I

The Environment: Physical environment; biotic environment; biotic and abiotic interactions. Habitat and niche: Concept of habitat and niche; niche width and overlap; fundamental and realized niche; resource partitioning; character displacement.

UNIT-II

Population ecology: population growth curves; population regulations; life history strategies (R AND K); concept of metapopulation-demes and dispersal, interdemic extinctions, age structured populations. Species interactions: Types, interactions, interspecific competition, herbivory, carnivory, pollination, symbiosis.

UNIT-III

Community ecology: Nature of communities; community structure and attributes; levels of species diversity and its measurement; edges and ecotones.

Ecological succession: Types; mechanisms; changes involved in succession; concept of climax.

UNIT-IV

Ecosystem: Structure and function; energy flow and mineral cycling (CNP); primary productions and decomposition; structure and function of some Indian ecosystems: terrestrial (forest, grassland) and aquatic (fresh water, marine, eustarine).

UNIT-V

Biogeography: Major terrestrial biomes; theory of island biogeography; biogeographical zones of India. Applied ecology: Environmental pollution; biodiversity-status, monitoring and documentation; major drives of biodiversity change; biodiversity management approaches, Conservation biology: Principles of conservation, major approaches to management

BIOSTATISTICS AND COMPUTER APPLICATION

BPT 206

UNIT – I

CLASSIFICATION AND PRESENTATION OF DATA

Definition – Statistics and its application in Biology – Collection of data. Classification: Qualitative and Quantitative.

Tabulation: Diagrammatic representation – Graphical representation – frequency curves – frequency polygon and ogive curve – Population statistics.

UNIT – II

DESCRIPTIVE AND INFERNIAL STATISTICS

Measures of Central tendency: Arithmetic mean – Median – mode.

Measures of dispersion: Standard deviations and standard errors – co-efficient of variance.

Probability distribution – Binomial and Poisson distribution – Student's 't' Test – estimation and hypothesis. Test of significance – small samples and large samples – χ^2 distribution and its uses.

UNIT – III

CORRELATION AND REGRESSION

Correlation: Correlation of Karl Pearson's Co-efficient of correlation – testing its significance – interpretation.

Regression Analysis : Regression Coefficient – Construction of regression lines – properties – application.

UNIT – IV

BASIC CONCEPT OF COMPUTERS

Introduction to computers – characteristics of computers – Classification of digital computer systems – Anatomy of a digital computer – Number system (Basic Concept only) – memory units – Input and output devices – Auxiliary storage devices.

UNIT-V

COMPUTER APPLICATIONS:

Computer Software : Programming languages (BASIC, COBOL, FORTRAN AND C – only basic concept) – Operating Systems. Windows (WORD – EXCEL AND OWERPOINT – BASIC concept only). Data processing and Database Management – Internet – Email – Computer applications in Science and Technology.

BACHELOR OF PHYSIOTHERAPY [BPT]

Third Year

MICROBIOLOGY

BPT - 301

BACTERIOLOGY

UNIT – I

Laboratory Diagnosis Of Bacterial Diseases, Collection Of Specimens, Transport Of Specimens, Direct Microscopy, Antimicrobial Susceptibility Testing, Detection Of Pathogen Specific Molecules, Bacterial Pathogens: Gram-Positive Cocci, Staphylococci, Streptococci, Pneumococcus

UNIT – II

Bacterial Pathogens: Gram-Negative Cocci, Neisseria Gonorrhoeae (Gonococcus), Neisseria Meningitidis (Meningococcus), Bacterial Pathogens: Gram-Positive Bacilli, Bacillus Species, B. Cereus, Corynebacterium Diphtheriae

UNIT – III

Sporing Or Clostridial Anaerobes, Clostridia, Nonsporing Or Non-Clostridial Anaerobes, Pathogenesis, Common Infections Caused By Nonsporing Anaerobes, Bacterial Pathogens: Gram-Negative Bacilli, Enterobacteriaceae, Escherichia Coli-Klebsiella, Proteus, Shigella, Salmonellae, Pseudomonas And Burkholderia, Burkholderia Pseudomallei

UNIT – IV

Bacterial Pathogens: Mycobacteria, Mycobacterium Tuberculosis And M.Bovis, Atypical Mycobacteria, Mycobacterium Leprae, Bacterial Pathogens Spirochaetes, Spirochaetes, Treponema Pallidum, Borrelia, Leptospira

VIROLOGY

UNIT – V

General Properties Of Viruses, Morphology Of Viruses, Susceptibility To Physical And Chemical Agents, Classification Of Viruses, RNA Viruses, DNA Viruses, Virus Host Interaction, Procedures Used In Diagnosis Of Viral Diseases, Common Viral Pathogens, Human Immunodeficiency Virus (HIV), Hepatitis Viruses, Myxoviruses, Herpes Viruses- Rubella Virus

Reference:

1. Microbiology for Physiotherapy Students by B.S Nagoba

COMMUNICATION SKILLS

BPT – 302

UNIT – I

COMMUNICATION SKILLS IN ENGLISH

Introduction-The Importance of English-English as the First or Second language-Uses of English-Other Uses of English-Presentation Skills

UNIT – II

LISTENING SKILLS

What is Listening?- Types of Listening- Objectives-Active Listening- an Effective Listening Skill- Note Taking Tips- Barriers for Good Listening- Purpose of Listening-Outlines and Signposting- Gambits

UNIT – III

READING SKILLS

Importance of Reading- Definition of Reading- Levels of Reading- Requirements of Reading- Types of Reading- Techniques of Reading- Academic Reading Tips

UNIT – IV

WRITING SKILLS

What is Writing? - The Sentence- The Phrase-Kinds of Sentences- Parts of Sentence- Parts of Speech- Articles- Types of Sentences - Time Management Tips- Test Preparation Tips - Tips for Taking Exams- What is a Paragraph?- Construction of Paragraph- Letter Writing- Memo-Cover Letter-Resume writing

UNIT – V

COMMUNICATION SKILLS- SPEAKING SKILLS

Definition- Barriers of Communication- Types of Communication- Know What You Want To Say

REHABILITATION

BPT - 303

UNIT – I

Introduction to Rehabilitation Medicine, Epidemiology of Rehabilitation, Preventive Rehabilitation, Medical Rehabilitation, Sociovocational Rehabilitation, Delivery Of Rehabilitation Care: The Rehabilitation Team: Recreational Therapist, Rehabilitation Nurse, Psychologist And Child Development Specialist, Delivery Of Rehabilitation Care, Community Based Rehabilitation (CBR)

UNIT – II

Sociolegal Aspects Rehabilitation, Constitutional Responsibilities- Legislation In India, The Persons With Disabilities Bill, 1995 (PWD), Americans With Disabilities Act, Principles In Management Of Communication Impairment, Aphasia, Augmentative Communication, Visual Impairment, Common Eye Diseases, Communication For The Visually Impaired- Hearing Disorders

UNIT – III

Behavioural and Learning Problems In The Disabled, Behavioural Medicine, Psychiatric Problems In The Disabled, Emotional Behavior Disorder (EBD), Mental Retardation, Special Education, Orthotics, General Principles Of Orthotics, Calipers, Foot Orthoses, Ankle-Foot Orthotics, Knee-Ankle-Foot Orthotics, Hip-Knee-Ankle-Foot Orthotics, Functional Electrical Stimulation, Spinal Orthotics,

UNIT – IV

Vocational Rehabilitation, Functional Activities Of Hand, Major Functions Of The Hand, Prehension, Disabled Hand, Vocational Rehabilitation Team Physical Agents Used In The Management Of Pain And Paralysis, Pain, Theories Of Pain, Pain Management, Physical Agents Used In Management Of Pain And Paralysis

UNIT – V

Common Deformities And The Role Of Surgery In Rehabilitation, Common Deformities Of Lower Limb, Deformities Of Upper Limb, The Role Of Surgery In Rehabilitation, Torticollis, Scoliosis, Common Pain Syndromes, Low Back Pain, Neck Pain, Tennis Elbow, Golfer's Elbow, Dequervain's Disease, Pain In The Shoulder, Bicipital Tendinitis, Plantar Fasciitis, Osteoporosis

Reference:

1. Text book of Rehabilitation by S Sunder

ORTHOPAEDICS

BPT – 304

UNIT – I

Changes In The Musculoskeletal System, Development, Muscle Changes During Development, Bone And Joint Changes During Development, Joints, Tendons And Ligaments, Articular Cartilage And Joint Lubrication, Lifestyle, Ageing, Ageing And The Muscular System, Ageing And Non-Contractile Tissue, Cardiovascular System, Ageing Of Bone And Joints

UNIT – II

Management Of Fractures, Classification Of Fractures, Causes Of Fractures, Management Of Fractures, Reduction, Immobilization, Rehabilitation, Longer-Term Complications Of Fracture, Physiotherapy Assessment And Treatment, Acute Unstable Fractures, Stable Unstable Fractures, Case Studies

UNIT – III

Soft Tissue Injuries, Stages Of Healing, Classification Of Soft Tissue Injuries, Management Of Soft Tissue Injuries, Immobilization Or Protection, Complete Immobilization, Ligamentous Injuries, Progression Of Treatment, Muscles And Tendons, Surgically Repaired Soft Tissues, Ligament Repair, Nerve Decompression

UNIT – IV

Rheumatic Conditions, The Rheumatic Disorders, Pharmacological Management, Osteoarthritis, General Management Principles For Patients With rheumatic Conditions, Elements Of Physiotherapy Management In Patients With Rheumatic Conditions, Application Of Management Principles To Case Study- Rheumatoid Arthritis, Arthritis In Children- Rheumatic Conditions In Childhood

UNIT – V

Bone Diseases, Classification Of Bone Diseases, Anatomy And Physiology Of Bone, Common Reasons For Referrals To Physiotherapy Of Patients With Bone Diseases, General Disorders Of The Skeleton In Children, Osteoporosis, Local Affections Of Bone, Special Tests, Assessment Of The Patient With Bone Disease, Paget's Disease, Osteosarcoma

Reference:

1. Physiotherapy in Orthopaedics by Karen Atkinson, Fiona Coutts and Anne-Marie Hassenkamp

OBSTETRICS AND GYNECOLOGY

BPT - 305

UNIT – I

Menstruation, Pregnancy and Fetal Development, The Physical and Physiological Changes Of Pregnancy, Reproductive System, Cardiovascular System, Respiratory System, Gastrointestinal System, Nervous System, Urinary System, Musculoskeletal System, Complications Of Pregnancy, Ectopic Pregnancy, Diabetes Mellitus, Multiple Pregnancies

UNIT – II

The Antenatal Period, Antenatal Care Options, Routine Analytical Care, Preconceptual Care, Early Pregnancy, Antenatal Classes stress And Relaxation, Teaching Neuromuscular Control, Exercise And Pregnancy, Diet And Weight Gain In Pregnancy, Planning And Running Antenatal Preparation For Labour And Parenthood Classes

UNIT – III

Preparation For Labour, Relaxation, Imagery, Breathing, Positions In Labour, Perineal Massage, Other Coping Strategies, Pain Relief In Labour, Introduction Of TNS To Pregnant Women, Midwives And TNS, Acupuncture, Hypnosis, The Third Stage Of Labour, Birth Plans, Variations In Labour, The Puerperium, Loss Of A Baby, Miscarriage, Premature Delivery And Ill Babies

UNIT – IV

Common Gynecological Conditions, Gynecological Health, Gynecological Disorders, Physiotherapy in The Treatment Of Gynecological Infections, (Aids), Disorders Associated With Menstruation, Sexuality, The Psychological And Emotional Implication Of Gynecological Disease

UNIT – V

Early Pediatric Problems, Routine Examination Of The New Born, Neurological Examination, Normal Development, Neonatal Abnormalities, Arthrogyrosis Multiplex Congenital, Physiotherapy Management, Surgery, Physiotherapy Management Of Myelomeningocele, Respiratory Problems In The Pre, Term And Term Infant

B.P.T. – IV YEAR

Physiotherapy in Orthopedic Conditions

[BPT – 401]

UNIT – I

Planning, Prescription & Implementation of short term & long term goals with clinical reasoning, Documentation, Application of appropriate electro therapeutic modes for relief of acute & chronic pain & swelling; wound healing, re-education etc with clinical reasoning.

UNIT – II

Application of simple therapeutic modes for muscle strength / joint mobility, Application of Advanced therapeutic modes of mobility like Mobilizations Techniques (Techniques covered in IIIrd B.P.T.) (to be applied only on extremities), Friction Massage, Muscle Energy Techniques & Neuro Dynamic, Techniques on patients, Application of various taping methods for support & relief of pain.

UNIT – III

Posture Correction & Gait Training, Prescription of appropriate orthotic & prosthetic devices & fabrication of simple temporary splints, Application of appropriate Therapeutic exercise using therapeutic gymnastic tool, the relief of pain, structural stability, strength / endurance: & Functional restoration including gait training / maintenance of functions and the preventive measures.

UNIT – IV

Physiotherapy management for the following conditions: Manifestations of trauma & diseases of the bones & soft tissues of the musculo skeletal tissue, Fractures of the spine, extremities-classification / management & complications, Metabolic & hormonal disorders of the bone tissue – Osteoporosis, Peripheral nerve injuries, management complications – V.I.C.

UNIT – V

Deformities of the spine, extremities-congenital malformation-Spina Bifida, meningocele / meningo myelocele, Re-constructive surgeries in Polio & cerebral palsy, Inflammatory / Infectious disease of the bone & joints T.B., Tumours of the bone.

Reference book:

1. Donatelli, Orthopedic Physical Therapy
2. Maitland, Manual Therapy
3. Butler, Neural Tissue Mobilization

Physiotherapy in Neurological Conditions

[BPT – 402]

UNIT – I

Hemiplegia, disorders of cerebral circulation & space occupying lesions such as cortical, thalamic & Brain-stem lesions, Cranial nerves-emphasis on 7th & 8th nerves, C.P., subdural haematoma & birth injuries, hydrocephalus

UNIT – II

Disease of meninges, Neuro-syphilis, Tabes dorsalis, H.I.V. infection, Viral infection of nervous system-encephalitis Herpes, poliomyelitis, viral meningitis.

UNIT – III

Demyelinating diseases of the nervous System –Multiple sclerosis, Lesions of Extra-pyramidal system & Basal ganglia, Parkinsonism, spasmodic torticollis, Athetosis, Chorea, Dystonia, Congenital & Degenerative disorders, Hereditary Ataxia, Peroneal muscle atrophy, Disorders of spinal cord-paraplegia, syringomyelia, Transverse myelitis, spinal Dysraphism.

UNIT – IV

Deficiency disorders-Sub-acute combined degeneration of spinal cord, Disorders of peripheral nerves, tumors traumatic, infective & metabolic lesions of nerves.

UNIT – V

Disorders of voluntary muscles-Dystrophies & Neuro-muscular junction disorders, Disorders of Autonomic nervous system, Psycho-somatic Pain & Paralysis.

Text Books

1. Cash's Text book for physio Therapist in Neurological disorders, Jaypee bros
2. Margaret Hollis, Practical Physical Therapy
3. O'Sullivan, Therapeutic exercise – by "Right in the middle" – by Patricia Davis
4. Margaret Johnson, Stroke rehabilitation
5. Mitra, Handbook of Practical Neuro Physiotherapy
6. Raj, Physiotherapy in Neuro conditions
7. Reference book:
8. Basmajian, Therapeutic exercise 5th edn

Physiotherapy In Medical & Surgical Conditions
(Including Cardio-Vascular & Respiratory Conditions)

[BPT – 403]

UNIT – I

Physiotherapy Management for the following conditions:

Cardiac disorders (Congenital, Acquired, Rheumatic, Post Cardiothoracic surgeries), Pulmonary disorders (obstructive, Restrictive, Occupational & Pediatric, pulmonary infective.) Precautions with HIV, Peripheral Vascular Diseases, Diabetes (Wound, Ulcer, Glycemic control with exercise), Obesity, Amputation, burns & general Surgery, Intensive care unit suctioning, measures to improve Bronchial Hygiene.

UNIT – II

Clinical:

Skill to palpate all pulses, rhythm, rate, volume & Heart rate / pulse rate discrepancy, Skill to assess B.P. at various sites, & its Physiological variation, & to assess Ankle Brachial Index, Skill of exercise testing

a) 6/12 min walk,

b) symptom limited

UNIT - III

Interpretation of

Treadmill & Ergo-cycle test findings, ECG, I.H.D. & Blocks, Biochemical analysis-serum enzymes, C.P.K. Levels, L.D.H., S.G.P.T., Lipid profile, electrolyte balance, Chest x-ray.

UNIT-IV

Evaluation & treatment planning presentation

i) Medical Respiratory condition

ii) Pediatric respiratory condition

iii) Thoracic Surgical condition

UNIT – V

- i) Cardiac Medical condition
- ii) Cardiac Surgical condition
- iii) Peripheral vascular disorders
- iv) Abdominal surgical condition
- v) Mastectomy I Amputation

Reference Book:

1. Webber, Physiotherapy in Cardio – Vascular Rehabilitation
2. Wenger, Exercise & the Heart
3. P.J. Mehta, ECG
4. Irwin Scott, Cardiopulmonary Physical Therapy

Physiotherapy In Sports Injuries

[BPT – 404]

UNIT – I

Introduction to common sports injuries in India, Evaluation of common sports injuries like, injuries in cricket, hockey, football, swimming, basketball, baseball etc., Evaluation of Physical, Cardio-Respiratory, Psycho-social and Emotional aspects of sports, Dietics and Nutrition for sports persons

UNIT – II

Sports and Sports Training procedures, Evaluation of Pre-requisite of sports and Training, Instrumentation in sports training isokinetic Exercise, Treadmill with Cardio respiratory evaluation.

UNIT-III

Modern principles of Sports Analysis and Training, Investigation in sports injuries, Sports Injuries Management.

UNIT – IV

Principles of sports injuries management at the following stages

Immediately after injury, Acute stage, Chronic stage, Rehabilitation stage, Soft tissue injury management.

UNIT – V

Injuries and management in the following

Hip, Knee, Ankle and Foot injuries, Spine, Head and Neck injuries, Pharmacology in Sports, Rehabilitation in Sports.

Reference Book:

1. David Kennedy, The Children's Sports injuries of Dynamics of Clinical Rehabilitation Exercise of order.
2. Cramer, Basic Athletic Training
3. Kingston, Understanding Muscles: A Practical Guide to Muscle Function (Ex)
4. McMahon, Lange current diagnosis and treatment sports medicine

Community Physiotherapy & Disability Management

[BPT – 405]

UNIT – I

W.H.O. definition of health and disease, Health delivery system – 3 tier, Physical fitness definition and evaluation, Effect of growth, Physical fitness in women-pregnancy, menopause, Physiology of aging – neuro musculoskeletal, CVS, metabolic and degenerative.

UNIT – II

Women's Health – Women in India, Social issue having impact on physical Function, Legal rights and benefits. Anatomical & Physiological variations associated with pregnancy & menopause, Antenatal, post natal care, advice on labor positions, pain relief, - Urogenital dysfunction, prolapsed, incontinence and therapeutic interventions, Geriatrics – Senior citizens in India, NGOS, Legal rights, benefits. Institutionalized & Community dwelling elders. Physiology of ageing, Ms & neuro / Cardio respiratory, metabolic, scheme of evaluation & role of PT in Geriatrics.

- a) Definition of International classification of functioning.
- b) Disability – evaluation, types, prevention.
- c) Rehabilitation – definition, types { institutional, reach out and CBR

UNIT – III

Industrial Health:

a) Ability Management Job analysis:

- i) Job description, Job demand Analysis, Task Analysis, Ergonomics Evaluation, Injury Prevention, and Employee Fitness Programme.
- ii) Disability Management:- Acute care, Concept of Functional Capacity Assessment, Work Conditioning, Work Hardening.

b) Environmental stress in the industrial area – accidents due to

- i) Physical agents e.g. heat / cold, light, noise. Vibration, UV radiation, ionizing radiation.
- ii) Chemical agents – inhalation, local action and ingestion.

UNIT – IV

Bio-Engineering

Classification of Aids & appliances, Biomechanical principles in designing of appliances & Procedures for static & dynamic alignment of the following-Aids & appliances / Splints / Orthosis – for spine –upper & lower limb, Prosthesis- for Lower limbs, Upper limbs, Project-Temporary splints-to fabricate ONE splint each – (to use P.O. P, aluminum strips/sheets/wires, rubber bands, rexin, Orfit etc), Opponence splint, Anterior and posterior guard splints for gait training, Foot drop splint, Facial splint

UNIT – V

Professional Issues / Administration / Management & Marketing

Section I – Professional Issues [Including Ethics]

Concepts of morality, Ethics, Functions of the Indian association of Physical therapy, Functioning of the World Confederation of Physical therapy [W.C.P.T.]

Section II – Administration / Management & Marketing

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, Methods of maintaining records.

Reference Books:

1. Mural K F, Ergonomics Man in his Working Environment
2. Mc'Ardle Exercise Physiology
3. Nordin Andersons Pope, Musculoskeletal Disorders in work place-Principle & Practice
4. G R Madan, Indian Social Problem Vol 2
5. Disability 2000 – RCI
6. Gautam Bannerjee, Legal Rights of disabled in India
7. ICF – WHO Health Organisation 2001 publication
8. Park, Preventive & Social Medicine

