

H.N.B. Garhwal University, Srinagar, Garhwal

Examination Scheme, Syllabus & Ordinances

For

Bachelor of Physiotherapy

**Dolphin Institute of Bio-Medical & Natural Sciences
Manduwala, Dehradun**

Dolphin Institute of Bio-medical & Natural Sciences

Manduwala, Dehradun

BACHELOR OF PHYSIOTHERAPY

Attendance: The students admitted to this course will attend regular classes. In order to be eligible for appearing in the final examination at the end of an academic session, a candidate should have minimum of 75% attendance in each of the subjects (Theory and Practical separately).

Examination:

- (i) The medium of examination shall be English.
- (ii) In order to pass in a subject a candidate has to secure 50% marks in theory and Practicals separately.
- (iii) Each theory and practical will be evaluated for a total of 100 marks each, out of which 30% marks will constitute Sessionals and 70% marks for the final examination.
- (iv) There shall be three Sessional examination and the average marks secured in the best two Sessionals shall be considered.
- (v) The candidates need to obtain 50% in theory, 50% in practical, and 50% in individual subject and 50% in aggregate to be declared pass in the part 1st, 2nd, 3rd and 4th year examinations.
- (vi) A student who fails in two or less than two subjects shall be promoted to the next year. Such students will have to clear the subjects of the previous class on subsequent supplementary / annual examinations.
- (vii) A student who has failed in more than two subjects in a year will not be promoted to the next year class and he /she will have to repeat the year.
- (viii) At the end of 2nd year, if a student has not passed in all the subjects (theory and practical) of 1st year he / she will not be promoted to 3rd year.
- (ix) At the end of 3rd year, if a student has not passed in all the subjects (theory and practical) of 2nd year he / she will not be promoted to 4th year.

The successful candidates shall be classified, as under on the basis of aggregate marks obtained in the I, II, III and IV year examinations take together: -

- | | |
|------------------------------------------------|-----------------|
| a) Those who obtain 75% or more will be marked | D/Distinction |
| b) Those who obtain 60% or more but below 75% | First Division |
| c) Those who obtain 50% or more but below 60% | Second Division |

Marks Distribution
Bachelor of Physiotherapy – Ist Year

S.No.	Subject	Code No.	Theory		Total	Practical		Total
			M.M. Annual	M. M. Sessional		M.M. Annual	M. M. Sessional	
1.	Human Anatomy	BP-101	70	30	100	70	30	100
2.	Human Physiology	BP-102	70	30	100	70	30	100
3.	General, Social & Clinical Psychology	BP-103	70	30	100	----	----	----
4.	Biochemistry	BP-104	70	30	100	----	----	----
5.	Basic Principles of Physiotherapy	BP-105	70	30	100	----	----	----
	Total Marks		----	----	500	----	----	200

Bachelor of Physiotherapy – IInd Year

S.No.	Subject	Code No.	Theory		Total	Practical		Total
			M.M. Annual	M. M. Sessional		M.M. Annual	M. M. Sessional	
1.	Exercise Therapy, Massage & Yoga	BP-201	70	30	100	70	30	100
2.	Electrotherapy & Actinotherapy	BP-202	70	30	100	70	30	100
3.	Biomechanics & Kinesiology	BP-203	70	30	100	70	30	100
4.	Pathology and Microbiology	BP-204	70	30	100	----	----	----
5.	Pharmacology	BP-205	70	30	100	----	----	----
	Total Marks		----	----	500	----	----	300

Bachelor of Physiotherapy – IIIrd Year

S.No.	Subject	Code No.	Theory		Total Study Hrs.		Practical		Total Study Hrs	
			M.M. Annual	M.M. Sessional			M.M. Annual	M.M. Sessional		
1.	Clinical Orthopaedics	BP –301	70	30	100	160	75	25	100	130
2.	Clinical Neurology & Psychiatry	BP –302	70	30	100	160	75	75	100	130
3.	Clinical Cardio-thoracic Conditions	BP –303	70	30	100	100				
4.	Gen. Medicine, Skin & Paediatrics	BP –304	70	30	100	100				
5.	Gen. Surgery, Obs, Gyne, ENT & Plastic Surgery	BP –305	70	30	100	100				
6.	Disability, Prevention & Rehabilitation	BP –306	70	30	100	100				
	Total Marks				600	780			200	260

Bachelor of Physiotherapy [B.P.T.]- Ist Year
Paper – I [Human Anatomy]

Code – 101 [Max. Marks – 70]

Section – I [General Anatomy]

1. Introduction : Scope of Anatomy, organization of tissue, organs and systems. Anatomical position of the body, axis and planes.
2. Structure of skin.
3. Muscles – Classification and description of the structure.
4. Bones – Classification development, parts of long bones and blood supply of bones.
5. Joints – Definition, classification, movements of different joints.

Section – II [Regional Anatomy]

1. **Upper Extremity**
 - a. Osteology–Clavicle, Scapula, Humerus, Radius, Ulna, Carpels, Metacarpels and Phalanges.
 - b. Soft tissue parts – Breast, Pectoral region, axilla, front of arm, back of arm, cubital fossa, front of forearm, back of forearm, palm, sorsum of Hand, Nerves and vessels of upper extremity.
 - c. Joints – Shoulder girdle, shoulder joint, elbow joint, radio-ulnar joint, wrist joint and joints of hand.

Section – III

2. **Lower Extremity**
 - a. Osteology– Hipbone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges.
 - b. Soft Tissue parts : Gluteal region, front and back of the thigh (Femoral triangle, femoral canal and inguinal canal) medial side of the thigh (adductor canal), lateral side of the thigh, popliteal fossa, anterior and posterior compartment of leg, sole of the foot, lymphatic drainage of lower limb, venous drainage of the lower limb, arterial supply of the lower limb.
 - c. Joints – Hip joint, Knee joint, ankle joint and joints of the foot.

Section - IV

3. **Trunk**
 - a. Osteology – Vertebra and ribs
 - b. Soft tissue parts – Pre and para vertebral muscles, intercostals muscles, anterior abdominal wall muscles.
 - c. Joints – Cost chondral, costo vertebral, intervertebral.
4. **Head and Neck –**
 - a. Osteology – Mandible and bones of skull.
 - b. Soft tissue parts – Muscles of face and neck and their nerve and blood supply.
 - c. Joints – Temporomandibular joints

Section – V [Thoracic Region]

- | | | | | |
|------------------------|-------------------------------|------------|------------------|------------------|
| a) Walls of the Thorax | b) Thoracic cavity and pleura | c) Lungs | d) Media Sternum | |
| e) Pericardium | f) Heart | g) Trachea | h) Esophagus | i) Thoracic Duct |

Section – VI [Abdomen]

- | | | | |
|-------------------------------------------------|------------------------------------|-------------|-----------------------------|
| a) Anterior abdominal wall | b) Abdominal cavity and peritoneum | c) Stomach | d) Intestine |
| e) Spleen | f) Pancreas | g) Liver | h) Posterior abdominal wall |
| i) Kidney and Ureter, Urinary Bladder & Urethra | j) Diaphragm | k) Perineum | |
| l) Male & Female reproductive organs | m) Rectum and Anal Canal | | |

Section – VII [Neuro-Anatomy]

- | | | |
|---------------------------------------------|-----------------------------------------------------------|------------------|
| a) Meninges & C.S.F. | b) Sulci & Gyri and various areas of Cerebral Hemispheres | |
| c) Thalamus, Hypothalamus and Basal Gangila | d) Cerebellum | e) Pons, Medulla |
| f) Spinal Cord | g) IIIrd, IVth & lateral ventricles | |

PRACTICALS

1. Identification and description of all anatomical structures with help of models, charts, CD Rooms etc.
2. Surface making of lung pleura fissures and lobes of lungs heart abdominal viscera and important nerves and blood vessels.
3. Demonstration of movements of important joints.
4. Identification of body prominences on inspection and palpation in the body especially of extremities.
5. Points of Palpation of Nerves & Arteries.

List of Books

- | | |
|---------------------------------------|----------------------------------------|
| a) Gray's Anatomy | b) Human Anatomy By – B.D. Chaurasia |
| c) Snell's Clinical Anatomy | d) Grant's Anatomy |
| e) Last's Anatomy | f) Mc. Gregor Surgical Anatomy |
| g) Hollinshed Anatomy for Surgeons | h) Anatomy By – I.B. Singh |
| i) Trux and Carpenter's Neuro Anatomy | j) Mc. Millions Atlas of Human Anatomy |
| k) Grant's Atlas of Human Anatomy | l) De Fioris Human Anatomy |

Unit – I

I. Cell Structure and Function

II. Physiology of the Muscles and Nerve :

- a) Physiology of muscle function
- b) Types of contractions, all or none principle
- c) Muscle tones, fatigue, exercise
- d) Nerve cell and Electro – Physiology
- e) Degeneration of nerve
- f) Reaction of Degeneration

III. Physiology of Blood and CVS Composition of blood, formation and function of Red Blood Cells.

- a) Hemoglobin
- b) Formation and Function of leucocytes
- c) The Plasma Proteins
- d) Blood Groups
- e) Heart Vessels & Cardiac Muscles
- f) Blood Pressure, and factors maintaining and affecting circulations
- g) Cardiac cycle and output, electro – cardiogram
- h) Coagulation of blood and Reticuloendothelial system

Unit – II

I. Respiratory System

- a) Mechanism of respiration – Internal and external
- b) Nervous control of Respiration
- c) Factors affecting Respiration
- d) Capacity and lung volumes (Vital capacity, tidal air, residual air, reserve air, minimal air etc.)
- e) Transport of gases and Hypoxia

II. Physiology of the Digestive System

- a) Introduction to digestive system, alimentary functional anatomy
- b) The salivary glands
- c) The stomach and its secretion
- d) Pancreas
- e) The Bile
- f) The small intestine
- g) Movement of the alimentary tract
- h) Digestive processes and functions of liver
- i) Absorption, metabolism, basal metabolism, food requirements
- j) Metabolism

Unit – III

I. Physiology of the Endocrinal System

Physiology of the endocrine glands (pituitary, pineal body, thyroid, parathyroid, adrenal, gonads, thymus and pancreas etc.).

II. Physiology of Urogenital System

- a) Physiology of kidney and urine formation
- b) Constituents of normal urine etc.
- c) Kidney function tests.
- Miscellaneous aspects of renal physiology, Micturition
- d) Male and Female Reproductive Organs

Unit – IV

I. Physiology of the Skin : The Skin and its function.

Unit – V

I. Physiology of the Nervous System

- a) Reflex arc
- b) Physiology of the central nervous system
- c) Posture, locomotion and equilibrium
- d) Reflexes
- e) Physiology of the sympathetic and parasympathetic nervous system
- f) Sensory system and receptors
- g) Motor areas, descending and ascending tracts
- h) ANS
- i) Reticular formation
- j) Cerebrum, Cerebellum, basal ganglia, thalamus, hypothalamus, CSF and Blood brain barrier.

Practical : Demonstration of the experiments of the various physiological phenomenon.

- 1. Identification of blood cells and differential counts
- 2. W.B.C. Count
- 3. R.B.C. Count
- 4. Haemoglobin percentage
- 5. E.S.R. Blood Groups
- 6. Bleeding time and clotting time
- 7. Respiratory efficiency tests
- 8. Artificial respiration
- 9. Reflexes – Superficial and Deep
- 10. Sensations
- 11. Tests for functions of cerebrum
- 12. Tests for functions of cerebellum
- 13. Effect of exercise on B.P. and Pulse Rate

Reference Books

- 1. Human Physiology (Vol. – 1 & 2) – C.C. Chatterjee
- 2. Concepts of Medical Physiology – S.K. Chaudhari
- 3. Review of Medical Physiology – W.F. Ganong

Bachelor of Physiotherapy [B.P.T.] - 1st Year
Paper – III [General, Social & Clinical Psychology]

Code – 103 [Max. Marks – 70]

Unit – I

1. (i) **Nature of Psychology** : Behavior and Experience Conscious, subconscious and unconscious mind.
(ii) Fields of Psychology : Introspective and Experimental Method.
(iii) School of Psychology : Associationism, Psychoanalytical theory behaviorism, Gestalt Psychology; structuralism and functionalism.
2. Heredity (Chromosome theory); Environmental – Physical, Psychological and Social Environment.

Unit – II

1. **Motivation** : Principle of Homeostasis; Need and its relation to structure and environment. Kinds of motives – Psychological, Psychological. Social and unconscious motives life goals and levels of aspirations; interests and attitude and motivational forces.
2. **Emotion** : Its nature and relationship with autonomic nervous system; James Lange theory of emotion; Heugon's theory of emotion; sentiments and feeling pathological and functional disorders of emotion, emotional hygiene.

Unit – III

1. **Conflict and Frustration**: Common defensive mechanisms – Identification, Regression, Icko's Repression, Projection, Sublimation and Rationalization.
2. **Learning role of learning in Human life**: Types of learning (a) Thorndike's Trial and Error learning (b) Associative (conditioning) Learning, practical application of conditioning technique in morbid. Fears, compulsion to steal and other neurotic behavior in eliminating undesirable, (c) Learning by insight – Gestalt learning, Kohler's experiments on animal learning; transfer of learning.

Unit – IV

1. **Memory (Retention)** : Types of memory – Recall, Recognition and Role of memory causes of forgetting.
2. **Attention and Perception** : Nature of attention, factors deterring attention; nature of perception, principles of perceptual grouping; illusions and Hallucinations.

Unit – V

1. **Intelligence** – Definition, intelligence tests – their uses; how the test is standardized Intelligence Quotient (I.Q.) general intelligence and special intelligence.
2. **Personality**: Definition; types approach and trait approach; measurement of personality – interview questionnaire rating, performance. Projective methods factors contribution towards development of personalities – biological and social factors.

Unit – VI

1. Develop and understanding of various emotional reactions to various illnesses.
2. Appreciate patient – therapist relationship.
3. Understand the various defense mechanisms used by patients in physical illness terminal illness and old age.
4. Develop ability to assess mental status for a brief history.
5. Appreciate signs and symptoms of mental illness.
6. Mental mechanisms and their role in health and disease
7. Stress, Conflict and Frustration in relation to psychosomatic illness.
8. Intelligence assessment and the role of neuro – psychological tests.
9. Psychological reaction of patients to physical illness, reaction to loss, death, bereavement.
10. Emotional needs and Psychological factors in relation to unconsciousness handicap.

List of Books

1. Gen. Psychology - C.P. Morgan
2. Do - J.P. Guilford
3. Do - Henry E Garret
4. Do - S.T. Chaubey
5. Do - D.N. Shrivastava
6. Manovigyan Ke Mool Adhar - R.K. Tandon
7. Abnormal Psychology & Modern Life - J.C. Coleman
8. Abnormal Psychology – a dynamic approach - Dr. Govind Tiwari
9. Abnormal Psychology – Page
10. Abnormal Psychology - Cameron
11. Fundamental Concepts of Clinical Psychology - Schanfar & Lazaraus
12. General Sociology – Vidhya Bhushan & Sachdev
13. Introduction to Psychology – T. Margan & King
14. Modern Clinical Psychology – Sheldon J. Korchin

**Bachelor of Physiotherapy [B.P.T.] - 1st Year
Paper – IV [Biochemistry]**

Code – 104 [Max. Marks : 70]

1. Biochemical organization of human cell.
2. Proteins – Classification, biochemical properties of proteins, organization of protein structure at I0, II0, III0 and IV0 levels. Physiotherapeutic significance of structural proteins.
3. Enzymes – Definition, Classification, their mode of action, coenzymes, isoenzymes and their role in functional disorders.
4. Biochemical aspects of haemoglobin and myoglobin (excluding structure) and their roles in physical activities, haemoglopathies.
5. Biochemical aspects of connective tissue and nervous tissue.
6. Biochemistry of muscle tissue including the biochemical events of muscle contraction and relaxation.
7. Metabolic chemistry
 - a) Basic concepts of intermediary metabolism.
 - b) Protein metabolism – deamination, transamination urea-cycle and its its biomedical significance.
 - c) Carbohydrate metabolism, glycolysis and kreb's cycle pathways. Role of carbohydrates in ATP production.
 - d) Lipid metabolism – Betaoxidation of saturated fatty acids, biosynthesis of ketobodies and their metabolic significance.
8. Hormones – classification, basic chemical composition and their biomedical roles.
9. Ideal Nutrition with the physiotherapeutic view point – eg. Protein disorders, vitamins – minerals – fibers.

Books Recommended :

1. Text book of biochemistry by S.P. Singh – CBS Publishers.
2. Text book of Medical Biochemistry By M.N. Chatterjee and Rana Shinde – Jaypee Publishers.
3. Text book of Medical Biochemistry By S. Ramakrishnan, K.G. Prasannan, R. Ranjan, Orient Longman.
4. Medical Biochemistry Baynes – Dominiczak Mosby.
5. Biochemistry – Pamela C Champe and R.A. Harvey, Lippincott – Publishers.
6. Fundamental of Biochemistry – Dr. A.C. Deb
7. A Text Book of Biochemistry – A.V.S.S. Rama Rao

Paper –V [Basic Principles of Physiotherapy]

Code BP – 105 Max. Marks : 70

Unit – I

Definition of Physiotherapy : Its branches and Scope.

Unit – II

Definition of Electrotherapy and classification of various modalities, circuit diagrams of various modalities.

1. Basic Electricity

- a) Main Power supply earthing types of plugs safety devices, transformers.
- b) AC, Electricity waveform, frequency, amplitude etc.
- c) DC electricity: Fundamental electric charges conduction and insulators. Free electron, capacitance and potential difference, resistance and Ohms Law. Capacitors. Rheostat Ammeter and voltmeter. Application of all these in physiotherapy department.

Effects of electric currents its chemical, thermal and magnetic effects.

Shock and its preventions

Magnetism and its principle its emphasis in dipole theory.

Thermionic valves and semiconductors.

Introduction to Galvanic and Faradic Currents

- | | | |
|-------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section II | : | Basic Principles in light & sound |
| Section III | : | Therapeutic and Physiological effects of heat and cold |
| Section IV | : | Mechanical principles, force, equilibrium, fixation and stabilization, axis and planes levers and pulleys, springs. Putty, action and reaction, torque, friction, work, energy and power. |
| Section V | : | Introduction to movements, types of muscles, types of muscles work, muscles, contraction, group action of muscles.
Active movement and passive movement and its various types and description it is details. |

Basic Starting Positions:

- | | | |
|------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section VI | : | Introduction to basic modalities of electrotherapy and exercise therapy – traction, tilt table, parallel bars, medicine balls, C.P.M., Wall bars, static cycle, quadriceps table, shoulder wheel, ankle exerciser, balance board, jogger, dumb bells, Wight cuffs etc.
SWD, ultra sound apparatus, stimulator, TENS, IFT, wax bath, moist heat therapy etc. |
|------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Reference Book:

1. The Principles of Exercise Therapy – M.Dena Gardiner
2. Practical Exercise Therapy – Margaret Hollis & Cook
3. Electrotherapy Explained Principles & Practice – John Low & Reed
4. Clayton's Electrotherapy Theory & Practice – Angela & Nigel

Recommended Books For Students of B.P.T.- Ist Year

Paper I [Human Anatomy]

S.No.	Title of the book	Author	Publisher
1.	Human Anatomy (Vol.-1,2&3)	B.D. Chaurasia's	C.B.S.Publisher
2.	Essentials of Anatomy	Inderbir Singh	Jaypee
3.	Essentials of Human Anatomy (Vol.-1,2 & 3)		

Paper II [Human Physiology]

S.No.	Title of the book	Author	Publisher
1.	Human Physiology (Vol.-1 & 2)	C.C. Chatterjee	Medical Allied Agency
2.	Concepts of Medical Physiology	S.K. Chaudhuri	New Central Book Agency (P) Ltd.
3.	Review of Medical Physiology	W.F.Ganong	McGraw Hill

Paper III [Gen. Social & Clinical Psychology]

S.No.	Title of the book	Author	Publisher
1.	Abnormal Psychology	S.K. Mangal / Coleman	
2.	Introduction to Psychology	T.Margan & King	Tata McGraw Hill
3.	General Psychology	S.K. Mangal	
4.	Psychology	Baron	
5.	Outline of Psychology	Ramnath Sharma	

Paper IV [Clinical Biochemistry]

S.No.	Title of the book	Author	Publisher
1.	Principles of Biochemistry	Lehringer	Kalyani Publisher
2.	Fundamentals of Biochemistry	Dr. A.C.Deb	Central
3.	A Text Book of Biochemistry	A.V.S.S.Rama Rao	UPSPD

Paper V [Basic Principles in Physiotherapy]

S.No.	Title of the book	Author	Publisher
1.	The Principles of Exercise Therapy	M.Dena Gardiner	C.B.S. Publisher
2.	Practical Exercise Therapy	Margaret Hollis & Cook	Blackwell Science
3.	Electrotherapy Explained Principles & Practice	John Low & Reed	Butterworth Heine Mann
4.	Clayton's Electrotherapy Theory & Practice	Angela & Nigel	AITBS

Note : Students are advised to purchase any one book for each subject.

Deptt. of Physiotherapy

Bachelor of Physiotherapy – IInd Year

Paper –I [Exercise Therapy, Massage & Yoga]

Code – 201
Max. Marks : 70

Unit – I

Relaxation and its principles. Techniques of local and general relaxation.

Suspension. Types and uses. Proprioceptive neuromuscular facilitation, Introduction, Basic techniques and technique of emphasis, Hydrotherapy its types Principles effects, contraindication & Indications.

Unit – II

Evaluation methods – Principles – techniques

- (a) Individual and group muscle testing
- (b) Mobility goniometry and soft tissue tightness
- (c) Limb girth and length
- (d) Posture
- (e) Chest expansion
- (f) Hand Function

Unit – III

Soft tissue manipulation

Definition and History, Physiological effects. Preparation of patient and therapist, classifications, techniques and accessory movement, indications and contraindications.

Unit – IV

Locomotion

Normal gait cycles and its phases. Pathological gait and gait training

Walking its principles for selection and training using them.

Stair case climbing, Transfer techniques and Precrutch training.

Unit – V

Joint Movement

Principles of Mobilizing, techniques, Physiological and accessory movements, Individual joint mobilization.

Stretching techniques types and its principles.

Unit – VI

Strengthening and reeducation, early, late and functional, strengthening techniques for power & endurance, specificity principles. Principles in home exercise and group exercises, Principles of selection of exercises.

Aerobic exercises with their prescription.

Unit – VII

Misc

ADL, Coordination mat exercises, Breathing exercise types and various position Traction Types, effects.

Principles Indications and contraindication Hand Functions, Posture. Derived position.

Yoga History, classification and different Asanas their therapeutic utilities. Advance Yoga therapy specific to various condition.

PRACTICALS : The syllabus for practical examination shall be relevant portion of the theory.

Bachelor of Physiotherapy – IInd Year

Paper – II [Electrotherapy & Actinotherapy]

Code – 202
Max. Marks : 70

Unit – I

Low Frequency electricity

Nature, effects, Uses, Indications, Contraindications etc. of the following.

Sec I : Faradic currents, direct currents and sinusoidal currents. Its various types.

Sec II: Transcutaneous electrical nerve stimulator.

Unit – II

Medium Frequency currents

Interferential Therapy and Russian stimulation

Unit – III

High Frequency electricity

Physiological and thermal effects uses, indications, contraindications of S.W.D. and Microwave diathermy.

Unit – IV

Radiations

Therapeutic values, techniques of application, effects. Indications and contraindication of UVR, IR and LASER.

Unit – V

Sound

Physiological & Therapeutic effects. Indications contraindication of Ultrasound.

Unit – VI

Thermal electrotherapy

Use principles of applications, effects, indications & contra-indications of

1. Paraffin wax therapy
2. Moist heat therapy
3. Contrast bath

Unit – VII

1. Electromyography (EMG)
2. Biofeedback
3. Nerve conduction velocity
4. S.D. curve and other diagnostic methodology
5. Cryotherapy

Unit – VIII

1. Micro currents and Electroaccupuncture
2. Longwave Therapy
3. Combination Therapy

PRACTICAL : The syllabus for practical examination shall be relevant portion of the theory.

Bachelor of Physiotherapy – IInd Year

Paper – III [Biomechanics & Kinesiology]

Code – 203
Max. Marks : 70

Unit – I

1. Introduction of study of Kinesiology.
2. Fundamental concepts: starting position, the centre of gravity, line of gravity, planes and axis of motion, fundamental movement of major body segments.

Unit – II

1. Muscular System:- Definition: Properties of muscle, muscular contraction, structural classification, action of muscles in moving bones, direction of pull, angle of pull, functional classification, co-ordination of muscular system.
2. The joints:- Their structure and function.
3. Neuro-muscular functions: The motor units, innervation of muscles, muscle tonus, reflexes, reciprocal innervation and inhibition kinesthetic sense and ballistic movements.

Unit – III

1. The machinery of the musculo-skeletal system – The levers, Anatomical levers, the wheel and axle, the pulley, the efficiency of machines.
2. The fundamental principles of motion- The causes and kinds of motion, kinds of motion experienced by the body and factors determining the kind and modification of motion. The laws of circular motion.
3. Fundamental principles of force and work- Force and its magnitude, direction, point of application, components of muscular force, components of external force, graphic representation of force, true force and the resistance arms of the lever, the confused affects of two or more forces.

Unit – IV

Principles of Stability Principles Covering Posture

- | | |
|-------------------------------|---------------------|
| (a) Vertebral column (Thorax) | (b) Shoulder Region |
| (c) Elbow | (d) Wrist and hand |
| (e) Hip | (f) Knee |
| (g) Ankle and Foot | (h) Neck |

Unit – V

Application of Kinesiology to

- (a) Locomotion – Walking, Running & Biomechanics of all phases of gait cycle.
- (b) Physical therapy and occupation therapy
- (c) Daily life skills and
- (d) The selection and evaluation of exercise for conditions like kyphosis, lordosis, scoliosis etc for corrective purposes.

PRACTICAL

Evaluation and assessment of joint motion

Evaluation and assessment of daily life skills

Evaluation and assessment of different types of postures

Evaluation and assessment of locomotion

Evaluation and assessment of soft tissue injuries

Bachelor of Physiotherapy – IInd Year

Paper – IV [Pathology and Microbiology]

Max. Marks : 70

Code – 204

Part – I [Pathology]

Unit – I

1. Introduction
2. Etiology and Classification of Diseases.
3. Inflammations-acute, subacute and chronic example of bacterial fungus, viral, allergic inflammations. Inflammation of bones and joints.
4. Wounds – Types of wounds and healing.

Unit – II

- | | |
|-------------------------------|-------------------------|
| 1. Degeneration | 2. Disorders of growth |
| 3. Metabolic diseases of bone | 4. Healing of fractures |
| 5. Tumors of bones | 6. Myopathies |

Unit – III

1. Diseases of C.N.S. and Peripheral nerves

Unit – IV

1. Disease of Respiratory system
2. Diseases of Cardiovascular system
3. Diseases of musculoskeletal system

Unit – V

1. Circulatory disorders – Haemorrhage, thrombosis, embolism and ischaemia, Gangrene, Infarctions, oedema and its types.

Notes : Emphasis be laid down upon the basic principles as required for Physiotherapy students.

Part – II [Microbiology]

Unit – I

Introduction and Historical Background
Discovery of microorganisms
Recognition of microbial role in disease – Koch's postulates
Development of chemotherapy
Development of Virology and vaccination
Scope and Relevance of microbiology
Contribution of – Leewenhoek, Pasteur, Koch, Lister, Metehnikoff, Ivanowski, Jenner and Flemming.

Unit – II

Microbial structure and function

Morphology and anatomy (Cell components and their functions) of bacteria, yeast, moulds and viruses.
Brief idea of reproduction in bacteria(Conjugation, transudation and transformation) and multiplications of viruses.
Culture media, culture methods (anaerobic culture, pure culture) and staining techniques (simple, nagative, gram, acid fast) used in bacteriology.

Unit – III

Type of infection – Primary, Secondary, Focal, Cross, Subclinical, Iatrogenic and Reinfection – Definitions only. Nosocomial infection – types with causal – organisms.

Sources and methods of transmission of infection. Type of infection disease (definition only) – Localised, Generalised, Bacteremia, Septicemia, Pigemia, Endemic, Epidemic and Pandemic.

Disinfection, Antisepsis and Sterilization, Agents used for control of microorganisms (Physical and Chemicals).

Unit – IV

Microbial Pathogens:

Viral Pathogens:

Varicella, Herpes Simplex, Rubeola, HIV. Rabies, Polio and Hepatitis viruses.

Bacterial Pathogens:

Streptococcus, Mycobacterium, Clostridium, Staphylococcus, Vibrio, Salmonella, Treponema, Mycoplasma and Actinomyces.

Fungal Pathogens:

Tinea and Candida

Normal microflora of human body

Skin, Mouth, URT, Intestinal tract and Genitourinary tract.

Unit – V

Immunology

Innate and acquired immunity

Antigens, Determinants of antigenicity

Anti body structure & classes (IgG, IgA, IgM, IgD, IgE)

Brief Idea of compliment system and its function

Structure and function of immune system – Lymphoid organ, cells of lymphoreticular system.

Humoral and cellular immune response, phagocytosis, chemical mediators, clonal selection theory of Burnet

Antigen-Antibody reaction – in vivo and in vitro

Hypersensitivity.

Bachelor of Physiotherapy – IInd Year

Paper – V [Pharmacology]

Code – 205
Max. Marks : 70

Unit – I

Definition of Pharmacology
Scope of Pharmacology in Physiotherapy
Dosage forms & Modes of Drugs administration
Processes of drug absorption
Biotransformation of drugs and factors affecting drug metabolism

Unit – II

Elementary knowledge of Drug-Toxicity & drug allergy, Drug Resistance.
Pharmacodynamics – mechanism of drug action and factor effecting drug action.
Elementary concepts of drug-receptor-interactions.
Time-dose & dose-response relationships.
Drug potency & efficacy.
Drug-antagonism.

Unit – III

Basic Pharmacology and Physiotherapeutic, role of following Pharmacodynamics agents-General and local anesthetics, anxiolytics, anticonvulsants, sedatives, antihistaminic agents, anti-inflammatory analgesic agents, neuro muscular blockers and muscle relaxants.

Unit – IV

Classifications of drugs used in various system and indications, pharmacological.
Effects and side effects of some common groups of Drugs.

Recommended Books For Students of B.P.T.- IInd Year

Paper I [Exercise Therapy, Yoga and Massage]

S.No.	Title of the book	Author	Publisher
1.	Therapeutic Exercise Foundation and Techniques	Kisner and Colby	J.P. Publisher
2.	Practical Exercise Therapy	Margaret Hollis and Phyl Fletch	Blackwell Science

Paper II [Electro Therapy and Actionotherapy]

S.No.	Title of the book	Author	Publisher
1.	Clayton's Electrotherapy Theory & Practice	Angela Forster and Nigel Palastonja	C.B.S. Publisher
2.	Electrotherapy Explained Principles and Practice	John Low and Ann Reed	B.H. Publisher

Paper III [Biomechanics And Kinesiology]

S.No.	Title of the book	Author	Publisher
1.	Brunmtrom's Clinical Kinesiology	Smith, Weiss and Lehmkuhl	J.P. Publisher
2.	The Principles of Exercise Therapy	M.Dena Grandiner	C.B.S. Publisher

Paper IV [Pathology & Microbiology]

S.No.	Title of the book	Author	Publisher
1.	Text Book of Pathology-A short text of Medical Microbiology	Harsh Mohan	J.P. Publisher

Paper V [Pharmacology]

S.No.	Title of the book	Author	Publisher
1.	Essential of Medical Pharmacology	Tripathi	J.P. Publisher

Note : Students are advised to purchase any one book for each subject.

Deptt. of Physiotherapy

BPT 3rd Year

CLINICAL ORTHOPAEDIC

Unit – 1

INTRODUCTION TO ORTHOPEDICS

General terminology & Techniques, Generalized idea about deformities Contractures, common affection of Bones, Soft tissue, joints etc.

Unit – II

Bone & Joint Infections

Etiology, Pathology, Clinical features, investigation, Management and complication of osteomyelitis septic arthritis, Tubercular Arthritis, pott's disease, arthritis of rheumatic fever & their Regional manifestations.

Unit – III

Generalised affections of joints

Rheumatoid arthritis, psoriatic arthritis, Ankylosing spondylitis, Reiter's disease Sero Negative – arthropathies, osteo arthrosis, sponyolysis, Gout, Pseudo Gout Haemophilic arthritis, Diabetics & Neuropathic arthritis.

Unit – IV

Generalis disease of Bones

Rickets, Osteoporosis, Paget's, Osteo chondritis
Bone tumors : Benign, Malignant, Dysplasia

Unit – V

Bursitis

Teno Synovitis Teno vaginitis Fibrositis Haematomas Paratendinitis Tendonitis, Sprain Strain

Other common regional disorders like meniscal injury, Ganglion, Capsulitis and synovitis etc.

Unit – VI

Generalized out line of fracture and dislocation

1. Types of fractures – dislocation, Healing of the fractures.
2. Generalized complication & symptoms of dislocation and fractures.
3. Common investigation & complications (immediate, early and late)
4. Methods of management conservative & operative.

Like plaster, traction, management internal fixation, Arthroothesis, Arthroplasty, Osteotomy Bone grafting and tenlon transfer etc.

Section – II Regional Orthopaedics

Unit – I Spinal Column.

Common Fracture & dislocation of vertebral column and common problems like PIVD & sacralization, spondylolisthesis, Scoliosis, Kyphosis, lordosis, LBA neck pain, torticollis etc.

Unit – II Shoulder girdle and arm

(1) Common, Fracture and dislocations, Bones & joints disorders of this Region and Common problems like frozen shoulders, periarthriting, sub acromial bursins, painful ayc syndrome etc.

Elbow & forearm :

Common fractures and dislocation, Bone & joint disorders of this region and common problems like myositis ossificans, volkman ischemic contracture. Tennis elbow, Golfers elbow, cubitus valgus & varus etc.

Wrist and Hand :

Common fractures and dislocations, bone and joint disorders of this region & common problems like de quervains, Dupuytren's contractures carpal tunnel syndrome. Ganglion, claw hand etc.

Lower limb :

Hip and thigh

Common fractures and dislocations, bones and joints disorders of this region and common problems like painful heel, plantar fasciitis pes planus, CTEV, hallux valgus metatarsalgia etc.

Section - III

1. Amputation Classifications; indication, pre-post operative management , prosthetic management preventions and treatments complication, its.
2. Polimyelitis, Pathology, clinical features, stages, complications details of conservative & operative treatment, PPRP – orsthosis & surgeries.
3. Peripheral Nerve injuries
Aetiology clinical features, investigations managements of common nerve injuries in upperlimb & lower limbs, Rehabilitation.
4. Cerebral palsy :
Aetiology, Clinical features, Types, investigation, management & Rehabilitations programmes.
5. Leprosy

Aetiology, Clinical features, investigations, Management & Complication.

Section – IV : Discussion of common orthopaedic appliances & instrument.

Practical : The syllabus for Practical Examination shall be relevant portion of the theory.

CLINICAL NEUROLOGY AND PSYCHIATRY

Unit – 1

Review of Neuroanatomy and Neurophysiology

1. Formation and circulation of C.S.F.

2. Cerebrum :

- (a) Motor & Sensory representational areas
- (b) Broca's area
- (c) Wernicke's area
- (d) Visual area
- (e) Auditory area
- (f) Fibres in the internal capsule.
- (g) Lateral and medial geniculate bodies

3. Brain Stem :

Location of the various cranial nerve nuclei and an outline of their supra nuclear & infra nuclear components.

4. Neural pathways :

- (a) Tracts-origin, course, termination & ascending function.
- (b) Descending tracts – Origin, course, termination & function.
- (c) Components of visual pathway
- (d) Components of auditory pathway.

5. Blood Supply :

- (i) of spinal cord.
- (ii) Of cerebrum
- (iii) Of internal capsule
- (iv) Circle of willis

Unit – II

1. Congenital and childhood disorders : Clinical features & management of

- (a) Cerebral palsy
- (b) Hydrocephalus
- (c) Spina-bifida

2. Cerebrovascular accidents : Clinical features, investigation & management.

- (a) Cerebral ischemia & infarction.
- (b) Embolism
- (c) Spontaneous intracranial haemorrhage – sub arachnoid haemorrhage primary intracranial haemorrhage.

3. Trauma :

- (a) Head injury – Pathophysiology, clinical features, investigations, management & late complications.
- (b) Spinal cord injuries, aetiology, pathology, clinical features, diagnostics & management.

4. Spinal cord disorders :

- (a) Syringomyelia
- (b) Tumors
- (c) Cervical and lumbar disc diseases.

5. Demyelinating diseases :

- (a) Guillain Barre Syndrome
- (b) Transverse myelitis
- (c) Multiple sclerosis.

6. Degenerative Diseases :

- (a) Parkinson's disease
- (b) Dementia

7. Infections :

- (a) Pyogenic meningitis.
- (b) Tubercular Infections of C.N.S.
- (c) Polimyeyitis.
- (d) Tabes Dorsalis

8. Leisons of cerebellum

9. Leisons of cranial nerves, assessments, Management.

- (a) Optic nerve: Optic neuritis and retrobulbar neuritis: clinical features, diagnosis & treatment.
- (b) Trigeminal nerve : Trigeminal neuralgia
- (c) Facial nerve
 - I. Facial Palsy & Bells Palsy
 - II. Hemifacial spasm
- (d) Vestibulo cochlear nerve
 - I. Tinitus
 - II. Vertigo
 - III. Hypoglossal
 - IV. Glossopharyngeal
- 10. Accessory nerve & Nuclear infranuclear lesions of accessory nerve
- 11. **Peripherals nerve disorders.**
- 12. **Diseases of muscle and neuro muscular junction.**
 - a) Myopathies, classification and prominent clinical feature.
 - b) Myasthenia gravis Pathophysiology, clinical features and management.
- 13. **Miscellaneous :**
 - a. Epilepsy- definition, classification and management.
 - b. Infra cranial tumors.
- 14. **Investigations**
 - a. Electro encephalography (EEG)
 - b. Electromyography (EMG)
 - c. Ventriculography
 - d. Myelography
 - e. Imaginag
 - (i) Computed Tomography (C.T.Scan)
 - (ii) Magnetic Resonance Imaging (M.R.I. Scan)

Unit – 3 (Psychiatry)

- 1. Defense mechanisms, causes and types of mental disorders, psychosomat complications.
- 2. Schizophrenia Manic depressive psychosis.
- 3. Psychoneurosis : Conversion and anxiety disorders, Hysteria anxiety state Reactive depression, obsessive compulsive disorder.
- 4. Electro convulsive therapy.
- 5. Mental retardation.

Practical : The syllabus for practical examination shall be relevant portion of the theory.

Paper – III CLINICAL CARDIOTHORACIC CONDITIONS

Unit – 1

Introduction Review of Anatomy and Physiology of Broncho Pulmonary Segments, Lungs, Heart and Thorax.

Unit – II

Basic principles of assessment in Cardiothoracic sciences.

Examination of Respiratory system and cardiac system disorders. Investigation techniques used in this Pulmonary function tests bronchoscopy, blood gas analysis X-Rays, exercise tolerance test, Mediastinoscopy, ECG, Angiography. Doppler & Echo Cardiography etc.

Unit – III

Thoracic cage abnormality

Common deformities like

- a. Funnel chest
- b. Pigeon chest
- c. Barrel chest
- d. Fracture rib & flail chest etc.

Unit – IV

Cardio vascular system

Common conditions like

Cardiac failure, Rheumatic fever, Congenital Heart Disease, Ischemic Heart disease Hypertension, Infective Endocarditis, Cardiac Myopathies and myocarditis, Pericarditis Vascular diseases like Atherosclerosis, Beugers disease, Phlebitis, Aneurysm Thrombosis, Varicose vein etc.

Unit – V

Common cardiac surgeries.

Types of incision, Pre & Post operative assessment and Management & complication.

Valvular disease & its Surgeries.

Congenital heart diseases.

Surgeries of Pericardium.
Open heart surgery and coronary angioplasty.
Cardiac transplant
Vascular surgeries.

Unit – VI :

Respiratory Diseases.

Definition, Etiology, Clinical features diagnosis acute & chronic bronchitis Co-Restrictive Disease.
Emphysema, Bronchial asthma, Pneumonia, Pulmonary tuberculosis, abscess, Bronchiectasis, Occupational lung diseases.
Respiratory failure & AIDS

Unit – VII

Thoracic surgeries

Outline : Indications, Contraindications, Site of incisions, Pre & Post Operation Management of following.
Lobectomy, Pneumectomy, Segmentectomy, Thoroplasty, Tracheostomy & resection.

Unit VIII

Description of the following procedures
Management of Endotracheal tubes Tracheal suction. Post extubation care ca-plummonary resuscitation.
Cardiac Massage, Artificial respiration, Defibrillator & ICU, ICCU care.

Paper – IV **GENERAL MEDICINE, SKIN & PAEDIATRICS**

Unit – I

Infectious diseases.

Measles, Enteric fever, Tuberculosis, leprosy, syphilis, malaria. Amoebiasis, etc.

Unit – II

C.V.S.

Ischaemic Heart Disease.
Hypertension
Valvular Heart Diseases
Pericarditis. Etc.

Unit – III

Respiratory System

COPD
Asthma
Bronchiectasis
Pneumonia
Pleurisy, etc.

Unit – IV

Digestive System.

Reflex oesophagitis
Peptic Ulcers
Ulcerative colitis
Hepatitis
Cirrhosis of Liver
Jaundice, etc.

Unit - V

Kidney and Genito Urinary System.

Glomerulonephritis.
Nephrotic Syndrome.
Renal Failure (Acute & Chronic) etc.

Unit – VI

Endocrine & Metabolic Diseases

Diabetes Mellitus
Hypothyroidism
Hyperthyroidism
Cushings syndrome, etc.

Unit – VII

Diseases of Blood.

Anaemia – Classification
Iron Deficiency Anaemia
Megaloblastic Anaemia
Pernicious Anaemia
Leukemia.
Haemophilia, etc.

Unit VIII

Diseases of the connective tissues, Joints & bones

Crystal deposition diseases
Rheumatoid Arthritis
Ankylosing Spondylitis
Juvenile Arthritis
Infective Arthritis.
Vasculitis
Osteoporosis
Rickets
Osteomalacia, etc.

Unit – IX

Skin

Acne
Psoriasis
Dermatitis
Leucoderma

Unit – X

Paediatrics

Mile stone & reflexes
Poliomyelitis.
Vitamin deficiency disorders, etc.

Paper-GENERAL SURGERY, OBS, GYNE, ENT & PLASTIC SURGERY

Unit – 1

Shock Types, Clinical Features, Pathology & Management
Haemorrhage.
Anaesthesia and Pain Relief, etc.

Unit – II

Wounds, Tissue repair and scars, classification, Acute and chronic wounds management.
Ulcers.
Tumours
Burns, Classification, C/F, Management
Skin grafting Indication, Types Methods.

Unit – III

Common abdominal surgeries, common incision, pre and post operative management of the following surgeries.
Appendectomy
Splenectomy
Hernia.
Gall-bladder surgeries.
Renal surgeries, etc.

Unit – IV

ENT- Anatomy & Physiology of Ear, Nose, Throat, Sinusitis, Rhinitis. Tonsillitis CSOM, Vertigo.

Unit – V

Obs and Gynae.
Pregnancy & Labour : Common complications and treatment.
Rectal prolapse.
Uterine Prolapse.
Incontinence.
Pelvic Inflammatory Diseases.

Unit –1

Organisation

A General Survey of the fields : correlating of theoretical principles with practical application History and Development of Occupational therapy and Physiotherapy with special reference to present uses and techniques in the major medical fields professional and Hospital Ethics and Atiquetts.

Supplementary reading and reports.

- a. Definition of Rehabilitation of the Handicapped.
- b. Scope of Rehabilitation Programme in India & Abroad.
- c. Organisational structure of the Rehabilitation.

Units of the Handicapped including.

- i. Finances : Budgets and income and expenditure statement and other financial detail of Rehabilitation Units including details of various part of Rehabilitation unit.
- ii. Space : Locations, survey sites, climatic and environmental conditions.
- iii. Miscellaneous :- Preparation of scheme for set up of Rehabilitation units in a Hospital of outside Hospitals with a given number of children or specific conditions.

Unit – II

Administration

- a. Principles or Relationship between personnel of Rehabilitation unit and other departments.
- b. Principles of Relationship between the institution and the guardians of the Handicapped patient.
- c. Principles of Relationship between head of the Unit with various Government and Semi-Government, trusts and Juniors.
- d. Principles of maintaining Department Secrecy; handling difficult problems of day to day work.
- e. Introduction to job analysis of importance.
- f. Methods of teaching to Handicapped and other workers in Rehabilitation unit.
- g. Principles of teaching and guiding students, junior and senior in O.T. and P.T. training schools and centers.

Unit – III

Rehabilitation Therapy

- I. A. The Philosophy and need of Rehabilitation
B. Principles of Physical Therapy.
- II. Principles of Rehabilitation Nursing
A. Organisation and Functions of Nursing Personnel
B. Nursing Activities on the Rehabilitation team.
C. Nursing Practice in Rehabilitation.
- III. Mental Retardation
A. Definition
B. Classification
C. Therapeutic approach for children --- mental retardation in special schools.
D. Home care programme for children with mental retardation.
E. Organisation and Administration of special school in different fields disabilities.

Unit – IV

Management

- a. Principles in Management of Social Problems.
 - I. Social Needs of the Patient
 - II. Rehabilitation center environment.
 - III. The social worker as a member of the Rehabilitation team.
 - IV. Contribution on social work.
 - V. Community Resources.
- b. Principles in Management of Vocational problem and Occupational Therapy.
 - I. Vocational Evaluation
 - II. Vocational Goals for the severally disabled.

**BPT 4th Year
PT IN ORTHOPAEDICS**

**Paper I
Code – 401
B.P.T. - 4th year
Max. Marks – 70**

Course Description

This course serves to integrate knowledge gained by students in clinical Orthopaedics with skills gained in Exercise Therapy, Electro Therapy & Thus enabling them to apply to clinical situation of dysfunction to musculoskeletal pathology.

Section – 1

Gen. PT assessment and approaches for traumatic conditions
Classifications of fracture, causes & types
Sign & symptoms of fracture
Complication of fracture
Healing & factors affecting it
Principles of fracture management
Principles of PT management in fracture
PT management of complications
Dislocations – Common sites, sign & symptoms & its PT management.

3. Specific fracture & their complete PT assessment & management

Upper Limb- Scapula, Clavical, Humerus, Ulna & radius, colles fracture & cruch Injuries of Hand.

Lower Limb- Fracture of pelvis, Neck of femur shaft of femur, Patella, Tibia & Fibula, Pott's fracture, of tarsal and metatarsal bones.

Spine- Management of fracture of spine with or without neurological defeciet.

Soft Tissue Injuries- Soft tissue injuries, Synovitis, Capsulitis, VIC, tear of semilunar cartilage. & cruciate ligament of knee etc.

4. Principles of PT Assessment & management in Dislocation & fracture dislocation

Section II

1. Degenerative and infective conditions

- Osteoarthritis of major joints, spondylosis, spondylitis, Prolapsed IVD, Spondylolisthesis, Periarthritis, Rotator cuff lesion of shoulder etc. T.B. of spine, bones & major joint, Gout, pseudogout, perthes disease, Rheumatoid arthritis. Ankylosing spondilitis etc. and other miscellaneous conditions commonly treated by PT.

2. Deformities

- a) Congenital-Torticolis, cervical rib, CTEV, Pes Cavus, Planus & other common deformities.
- b) acquired-Scoliosis, Kyphosis, Lordosis, Coxavara, Genuvalgum. Genuvarum & Genurecurvatum etc.

3. Orthopaedic Surgery

- Pre & Post operative assessment & management of surgeries like Arthroplasty. Arthrodesis, Osteotomy, Tendon Transplant. Soft tissue release, Grafting, total & complete joint replacement, Arthroscopy, spinal stabilization.
- Reattachment of limbs, Ilizarov surgeries in C.P. and polio external fixators

4. Amputation – Levels of amputation of Upper & lower limb, stump care, stump bandaging. Pre & post prosthetic fitting assessment & management. Complication of amputation & management.

5. Low Back Ache – Etiology, Clinical features investigation. Differential Diagnosis. PT assessment & management.

6. Regional Orthopaedics - P.T. Assessment & Management of all regional joints, bones & soft tissues.
Practicals: The syllabus of practical will be relevant portions of the theory

PT IN NEUROLOGY

Paper II
Code – 402
B.P.T. - 4th year
Max. Marks – 70

Course Description

This course serves to integrate knowledge gained by students in clinical neurology and neurosurgery with skills gained in Exercise Therapy, Electro Therapy & thus enabling them to apply to clinical situation of dysfunction to Neurological pathology.

Unit – I

Brief discussion of Nervous system including CNS, peripheral nerves and ANS.

Unit – II

Basic techniques used in assessment and treatment of nervous tissue disorders, like reflexes, sensory testing, cranial nerve testing. Milestones and neonatal reflex testing etc. Remedial exercise, Neuro developmental therapy, Bobath techniques, Broomstron techniques, PNF, Transfer techniques, Rood technique, MRP, RIP's etc.

Unit – III

Detailed Assessment and Management of diseases of CNS, Hemiplegia (Stroke), Cerebral Palsy, Polio, Multiple Sclerosis, Meningitis, Encephalitis, Ataxia, Tabes Dorsalis, Parkinsonisms, Spina Bifida, Motor Neuron Disease, Compressive myelopathy Etc.

Unit – IV

Assessment and treatment of peripheral nerve injuries
Myopathies, Muscular Dystrophy, Myasthenia Gravis, Polyneuropathies, Leprosy etc.

Unit – V

Assessment and treatment of following
Traumatic paraplegia, quadriplegia, nerve suturing, coma and head injuries etc.

Practicals: The syllabus of practical will be relevant portions of the theory

PT IN CARDIO THORACIC CONDITIONS

Paper III
Code – 403
B.P.T. - 4th year
Max. Marks – 70

Course Description

This course serves to integrate knowledge gained by students in clinical Cardiothoracic condition with skills gained in Exercise Therapy, Electro Therapy & thus enabling them to apply to clinical situation of dysfunction to cardiorespiratory pathology.

Unit – I

Introduction outline of pulmonary & cardiac anatomy, Broncho pulmonary segments and peripheral vascular systems, mechanism of respiration, respiratory muscles, lung volumes, gas exchange.

Unit – II

Basic Physiotherapy techniques like postural drainage, Breathing exercise, forced expiratory techniques, vibration, percussion, shaking etc.

Brief idea about other cardio thoracic procedures like suction, mechanical ventilation, AMBU bag, extubation care.

Unit – III

Physiotherapy assessment and management of chest deformities, conservative management of Rib Andsternum Fractures, Ischemic Heart disease, Congenital Heart Disease, Cardiac Myopathies and Endocarditis, Pericarditis, Asthma, Emphysema, Bronchitis, Bronchiectasis, Pulmonary Tuberculosis, Pleurisy, Pleural Effusion, Empyema.

Lung abscess, Pneumonia, Atherosclerosis, Burger's disease and other peripheral vascular problems, AIDS etc.

Unit – IV

Pre and post operative physiotherapy management of open heart surgery, heart transplant, heart lung transplant valvular and other congenital heart disease Surgery, Lobectomy, Pneumonectomy, Thoracotomy, Rib Resection, Vascular Surgeries, Artificial Respiration etc.

Practicals: The syllabus of practicals will be relevant portions of the theory

PHYSIOTHERAPY IN GEN. MEDICAL AND SURGICAL CONDITIONS

Paper IV
Code – 404
B.P.T. - 4th year
Max. Marks – 70

Unit – I

Oedema, Inflammation, Artherosclerosis, Aneurysms, Tumors, Rickets Diabetes, Panniculitis, obesity, Lymphedema, tetanus.

Unit – II

Gen. Surgery: Wound, Ulcer, Boils, carbuncles, Burns, pre and post operative P.T. Common Abdominal Incisions & common surgeries with their P.T. Treatment & Post Operative Complications, Appendectomy, Gallbladder Surgeries, Hernia, Splenectomy, Nephrectomy etc.

Unit – III

Skin: Acne, Psoriasis, SLE, Alopecia, Leucoderma, Athletic foot, Eczyma, Folliculitis Warts, callosities etc.

Unit – IV

Obs. And Gynae: Ante natal and Post natal Physiotherapy. Painless delivery, complication of pregnancy. PID and Salpingitis, Incontinence and Bladder conditions, Prolapsed Rectum and Uterus, Radical mastectomy.

Unit – V

ENT: Rhinitis, Sinusitis, Vertigo, Tonsillitis, Otitismedia, Palatal surgeries.

Unit – VI

Skin grafting and flaps, liposuction, mamoplasty, Rhinoplasty

Unit – VII

Pediatrics, delayed milestones, Cerebral Palsy, Autism.

Unit – VIII

Sports: Preparation of programmes for sportsmen

Mechanism of injury

Muscle building therapies

PT treatment of common sports injuries

Nutrition in sports

Ergonomics

Practicals: The syllabus of practicals will be relevant portions of the theory

RESEARCH METHODOLOGY, BIostatISTICS AND COMPUTER

Paper V
Code – 405
B.P.T. - 4th year
Max. Marks – 70

1. Biostatistics

Unit – I

Measurement of Central Tendency (Mean, Median Mode)

Measurement of Dispersion, Collection and classification of data, Graphical representation of data. Measurement of Central Tendency.

Theory of probability – Definition, Mathematical definition, Law, of Probability (Addition and Multiplication theorems)

Condition Probability, Expectations – Expected values or the mathematical expectation, addition and multiplication theorem on expectation.

Unit – II

Test-t-test, f-test and X^2 – test

Theoretical distribution (Binomial, Poisson and Normal distribution), Theory of sampling, population and sampling-introduction, main steps in sample survey, purposive sampling probability sampling simple Random sampling, quota sampling, systematic sampling, cluster sampling, multistage sampling.

Unit – III

Correlation and regression line:-

1. Coefficient of correlation
2. Properties of coefficient of correlation (r) calculation of (r) from table rank (Rank coefficient of correlation)
3. Linear and non linear regression. Regression Coefficient and Regression line.
4. Condition for Constancy of data, Coefficient of measuring associations.

Unit – IV

Computer: Application, Soft and Hardware, Application in Medicine, Programming etc. Modern concept of Computer Technology in Rehabilitation of persons with disabilities.