

4.30. B.P.T curriculum

B.P.T 1ST YEAR SYLLABUS COURSE CODE - BPT -101

Course Title: B.P.T. Human Anatomy (HA): Lecture (L): Practical (P)

HA 1.0. Subject Description and instruction to teacher

Anatomy is the first language of medical science. It is important that students be provided with the basic information about the ways of learning the various terminologies and concepts. The course is designed to provide students with working knowledge of the structure of the human body which is essential foundation for their clinical studies. The musculoskeletal system should be taught in greater detail with emphasis on muscles joints, nerves and blood vessels of upper limb, lower limb and spine. A brief description of abdomen thorax and head and neck should be given so as to help in locating the surface land marks and identification of important structures.

HA 1.0.1. Course Outcomes: Course Anatomy

Intended Learning Outcome: Competency level

K – Knows

KH – Knows How

S- Show

SH – Shows How

P- Performs Independently

1. Describe common anatomical terms (K)
2. Describe the basic embryological development of structures (K)
3. Discuss the classifications of bones, their general features, structure, functions and the mechanism of displacement and common sites of fractures (KH)
4. Identify the skeletal muscles, their origin, insertion, nerve supply, actions, and main relations. (KH)
5. Describe Muscle Groups, their actions, nerve supply and effects of nerve injury. (K)
6. Discuss the joints of the body, their movements, and the muscles responsible for the movements. (KH)
7. Identify the borders of the named anatomical regions along with their associated fascia, ligaments, tendons, or cartilages. (KH)

8. Recognize anatomical structures and describe the topographic anatomy of the regions of abdomen, pelvis, perineum, thorax, and extremities. (KH)
9. Describe the anatomy of the components of organ systems of the body based on the anatomical region. (Thorax, abdomen, pelvis, and perineum). (K)
10. Describe the components nervous system, including the cerebrum, brainstem, cerebellum, spinal cord, peripheral nerves, sensory motor, and autonomic nervous system. (K)
11. Identify clinically relevant injuries, lesions and anatomical malformations including musculoskeletal and nervous system. (KH)



HA 1.0.2. Teaching Learning Methods

1. Lecture
2. Tutorial
3. Demonstration using models including digital
4. Flipped class
5. Dissection

HA 1.0.3. Assessment Methods

1. MCQs
2. Long & Short Essays
3. Spotters

Course Contents : B.P.T. HA 101 (L)

Unit:1

- HA 1.1. Define Scope of Anatomy
- HA 1.2. Discuss the Anatomical Position and anatomical Terminology common anatomical terminologies (Groove, tuberosity, trochanters etc.)
- HA 1.3. Identify Anatomical positions of body, axes, and planes

Bone:

- HA 1.4. Discuss Composition, Functions, Classification based on Morphology,
- HA 1.5. Describe Development and Structure; Formation / Development of Bones esp. Long Bones; Parts of Long Bones
- HA 1.6. Discuss the Blood Supply of Bones

Cartilage:

- HA 1.7. Describe Types and Features of cartilage

Joints:

- HA 1.8. Define and state types of joints.
- HA 1.9. Discuss the features of fibrous, Cartilaginous & Synovial joints, sub-types of synovial joints
- HA 1.10. Explain the movements of joints, factors permitting and limiting these movement
- HA 1.11. Discuss blood supply of joints; applied aspects.

Muscles:

- HA 1.12. Discuss Comparative Feature of Skeletal, Smooth and Cardiac Muscles, parts & structure of Skeletal Muscle including fascicular architecture
- HA 1.13. Describe Blood supply and nerve supply of Skeletal Muscle; Motor Unit
- HA 1.14. Discuss the Types of Skeletal Muscles based on their action i.e. Agonists, Antagonists, Fixators, Synergists, Origin & Insertion, Tendon; Isometric & Isotonic contractions; Applied Aspects

Connective Tissue:

- HA 1.15. Explain Composition i.e. Cellular & Non-Cellular components;
- HA 1.16. Types and functions of connective tissue;
- HA 1.17. Types and functions of Ligaments;
- HA 1.18. Applied Aspects.

General Embryology:

- HA 1.19. Describe Ovum, Spermatozoa, fertilization and formation of the Germ layers and their derivations. Development of skin, Fascia, blood vessels, lymphatic, (outline only details not required).
- HA 1.20. Discuss Development of bones, axial and appendicular skeleton and muscles, Neural tube, brain vessels and spinal cord, Development of brain and brain stem structures

Integumentary System:

- HA 1.21. Discuss the Structure of skin and its appendages

Unit:2 Upper Extremity**Musculo Skeletal Anatomy of Upper Extremity**

- HA 2.1. Identify Osteology: Clavicles, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, and Phalanges.
- HA 2.2. Identify Soft parts: Breast, pectoral region, axilla, front of arm, back of arm, cubital fossa, front of fore arm, back of fore arm, palm, dorsum of hand, muscles, nerves, blood vessels and lymphatic drainage of upper extremity.
- HA 2.3. Explain Shoulder girdle, shoulder joint, elbow joints, radio ulnar joint, wrist joint and joints of the hand.
- HA 2.4. Discuss Arches of hand, skin of the palm and dorsum of hand.

Unit 3: Thorax:

Cardio-vascular system

- HA 3.1. Describe Mediastinum: Divisions and contents Pericardium
- HA 3.2. Describe Thoracic Wall: position, shape and parts of the heart; conducting System
- HA 3.3. Describe blood Supply and nerve supply of the heart; names of the blood vessels and their distribution in the body – region wise.

Respiratory system

- HA 3.4. Outline the respiratory passages, Pleura and lungs: position, parts, relations, blood supply and nerve supply; Lungs – emphasize on bronchopulmonary segments.
- HA 3.5. Describe Diaphragm: Origin, insertion, nerve supply and action, openings in the diaphragm.
- HA 3.6. Describe Intercostal muscles and Accessory muscles of respiration: Origin, insertion, nerve supply and action.

UNIT 4: Lower Extremity:

Musculo Skeletal Anatomy of Lower Extremity

- HA 4.1. Identify Osteology: Hip bone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges.
- HA 4.2. Identify Soft parts: Gluteal region, Anterior, posterior, medial and lateral aspects 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, arches of foot, skin of foot.
- HA 4.3. Discuss Joints of the lower limb: Hip Joint, Knee joint, Ankle and joint, joints of the foot.

Unit 5: Musculo skeletal anatomy of trunk & pelvis:

- HA 5.1. Identify Osteology: Cervical, thoracic, lumbar, sacral and coccygeal vertebrae and ribs.
- HA 5.2. Discuss Soft tissue: Pre and Para vertebral muscles, intercostal muscles, anterior abdominal wall muscles, Inter-vertebral disc.
- HA 5.3. Describe Pelvic girdle and muscles of the pelvic floor.

Unit 6: Abdomen:

- HA 6.1. Describe Peritoneum: Parietal peritoneum, visceral peritoneum, folds of peritoneum, functions of peritoneum.
- HA 6.2. Describe large blood vessels of the gut.
- HA 6.3. Identify Location, size, shape, features, blood supply, nerve supply and functions of the following: stomach, liver, spleen, pancreas, kidney, urinary bladder, intestines, and gall bladder.
- HA 6.4. Describe Pelvis: Position, shape, size, features, blood supply and nerve supply of the male and female reproductive system.

Unit 7: Endocrine glands:

- HA 7.1. Describe Position, shape, size, function, blood supply and nerve supply of the following glands: Hypothalamus and pituitary gland, thyroid glands, parathyroid glands, Adrenal glands, pancreatic islets, ovaries and testes, pineal glands, thymus.

Unit 8: Musculo Skeletal Anatomy of Head and Neck:

- HA 8.1. Identify Osteology: Mandible and bones of the skull.
- HA 8.2. Identify Soft parts: Muscles of the face and neck and their nerve and blood supply-extra ocular muscles, triangles of the neck.

Unit 9: Neuro Anatomy

- HA 9.1. Discuss Organization of Central Nervous system - Spinal nerves and autonomic nervous system mainly pertaining to cardiovascular, respiratory and urogenital system (Cranial nerves, Peripheral nervous system, Peripheral nerve, Neuromuscular junction, Sensory end organs, Central Nervous System, Spinal segments and areas, Brain Stem, Cerebellum, Inferior colliculi, Superior Colliculi, Thalamus, Hypothalamus, Corpus striatum, Cerebral hemisphere, Lateral ventricles, Blood supply to brain, Basal Ganglia, The pyramidal system, Pons, medulla, extra pyramidal systems, Anatomical integration)

Practical: B.P.T. Human Anatomy 101 Practical : HA (P)

HA (P) 10.1 Identify the parts of bones (Upper limb, lower limb and spine)

HA (P) 10.2 Identify the muscles of extremities, trunk and face on a dissected human body/3 D models.

HA (P) 10.3 Identify the joints of extremities, trunk and face on a dissected human body/3 D models.

HA (P) 10.4 Identify the course and relationships of major peripheral nerves including plexuses formation

HA (P) 10.5 Identify the surface markings of joints, fascia, ligaments and muscles of extremities, trunk and face on a model

HA (P) 10.6 Identify the gross structure of heart, lungs, brain and spinal cord on a dissected

HA (P) 10.7 Human body/3 D models

Recommended Text Books for HA

1. Snell RS. Clinical anatomy: an illustrated review with questions and explanations. Lippincott Williams & Wilkins; 2004..
2. Inderbir Singh, Text book of Anatomy with color Atlas – Vol. 1, 2, 3. Jaypee Brothers
3. Chaurasia BD. Human anatomy Volume- I, II & III, CBS Publisher; 2004.
4. Singh I. Textbook of human neuroanatomy. Jaypee Brothers Publishers; 2006.
5. Kadasne'S T.B. of Anatomy Vol.1 Upper and Lower Extremities 2009
6. Singh V. Textbook of clinical neuroanatomy. Elsevier Health Sciences; 2014.
7. Dutta AK. Essentials of human anatomy, head and neck.

Recommended Reference Books for HA

1. Gray's Anatomy: Descriptive and Applied. Longman
2. Snell RS. Neuroanatomy.
3. Singh V. Textbook of clinical neuroanatomy.
4. Romanes GJ. Cunningham's manual of practical anatomy
5. McMinn's Last's Anatomy – Regional and applied, Churchill Livingstone.
6. McMinn, et al - A Colour Atlas of Human Anatomy, Mosby.
7. Snell – Clinical Anatomy- Lippincott.

Course Title : Human Physiology (HP): Lecture (L): Practical (P)**HP 1.0. Subject Description and instruction to teacher**

The course in Physiology over the first year is designed to give the student an in-depth knowledge of fundamental reactions of living organisms, particularly in the human body. The major topics covered include the following: the cell; primary tissue; connective tissue; skin; muscle; nervous tissue; blood; lymphoid tissues; respiration; blood vessels; circulation; cardiac cycle; systemic circulation; gastrointestinal tract; kidneys; uterus; urinary tract; pregnancy; endocrine system. The emphasis should be given on physiological aspect of human movement and the effects thereof.

HP 1.0.1. Course Outcomes: Physiology

1. Describe the key physiological terms. (K)
2. Discuss the structure and functions of cell and tissue.(KH)
3. Discuss the mechanism of homeostasis (KH).
4. Describe the structure and transport functions of cell membrane (carrier-mediated active transport systems, ion pumps and channels, origin of membrane potential and the basis of membrane excitability) (K)
5. Explain the physiology of skeletal muscle contraction.(KH)
6. Explain the functions of cardio-vascular, respiratory, musculoskeletal and nervous systems including regulatory mechanism. (KH)
7. Describe the functions of digestive, renal and reproductive systems.(K)
8. Demonstrate competencies in performing common physiological and anthropological measurements. (SH)
9. Discuss the common physiological deviations of cardio-vascular, respiratory, musculoskeletal and nervous systems related to physiotherapy practice. (KH)
10. Explain normal physiological changes of various systems during exercise. (KH)
11. Discuss the physiological adaptations to exercise (KH)

HP 1.0.2. Teaching Learning Methods

1. Lecture
2. Tutorial
3. Demonstration using models including digital tools
4. Flipped class

HP 1.0.3. Assessment Methods

1. MCQs
2. Assignments
3. Short Essays
4. Long essay
5. Spotters

Course Contents : B.P.T. HP 102 (L)

Unit 1: General Physiology

- HP 1.1. Discuss Cell: Morphology. Organelles: their structure and functions And Transport Mechanisms across the cell membrane
- HP 1.2. Discuss Body fluids: Distribution, composition.

Unit 2: Blood

- HP 2.1. Explain Composition and functions of blood and Plasma:
- HP 2.2. Describe RBC: count and its variations. Erythropoiesis- stages, factors regulating. Reticulo-endothelial system (in brief)
- HP 2.3. Describe Hemoglobin –structure, function and derivatives Anemia (in detail), types of Jaundice. Blood indices, PCV, ESR.
- HP 2.4. Discuss WBC. Morphology, functions, count, its variation of each. Immunity
- HP 2.5. Describe Platelets: Morphology, functions, count, its variations
- HP 2.6. Discuss Hemostatic mechanisms: Blood coagulation–factors, mechanisms. Their disorders. Anticoagulants.
- HP 2.7. Describe Blood Groups
- HP 2.8. Describe Cross matching. Indications and complications of Blood Transfusion
- HP 2.9. Discuss Composition, formation, circulation and functions of Lymph

Unit 3: Cardiovascular system

- HP 3.1. Describe: Physiological anatomy and nerve supply of the heart and blood vessels. Organisation of CVS. Cardiac muscles: Structure. Ionic basis of action potential and pacemaker potential. Properties.
- HP 3.2. Explain Conducting system in terms of Components. Impulse conduction Cardiac Cycle: Definition. Phases of cardiac cycle. Pres- sure and volume curves. Heart sounds – causes, character. ECG: Definition. Different types of leads. Waves and their causes. P-R interval. Heart block.

- HP 3.3. Discuss Normal value. Determinants. Stroke volume and regulation of Cardiac Output: Heart rate and its regulation. Their variations
- HP 3.4. Describe Definition Normal values and its variations. Determinants. Peripheral resistance of Arterial Blood Pressure Regulation of BP Arterial Pulse
- HP 3.5. Discuss the causes and features of Shock
- HP 3.6. Discuss Regional Circulations such as Coronary, Cerebral and Cutaneous circulation.
- HP 3.7. Discuss cardiovascular changes during exercise.

Unit 4: Respiratory System

- HP 4.1. Discuss the functions of – Pleura, tracheo-bronchial tree, alveolus, respiratory membrane and their nerve supply. Functions of respiratory system. Respiratory muscles.
- HP 4.2. Explain the Mechanics of breathing in terms of Intra pleural and intrapulmonary pressure changes during respiration. Chest expansion.
- HP 4.3. Discuss Spirometry- Lung volumes and capacities. Timed vital capacity and its clinical significance. Maximum ventilation volume. Respiratory minute volume
- HP 4.4. Discuss Pulmonary Circulation. Ventilation-perfusion ratio and its importance.
- HP 4.5. Explain Transport of respiratory gases: Diffusion across the respiratory membrane. Oxygen transport – Different forms, oxygen- hemoglobin dissociation curve. Factors affecting it. P50, Haldane and Bohr effect. Carbon dioxide transport: Different forms, chloride shift.
- HP 4.6. Explain Regulation of Respiration: Neural Regulation. Hering-breuer's reflex. Voluntary control. Chemical Regulation.
- HP 4.7. Discuss Hypoxia: Effects of hypoxia. Types of hypoxia. Hyperbaric oxygen therapy. Acclimatization Hypercapnia. Asphyxia. Cyanosis – types and features. Dysbarism
- HP 4.8. Explain Respiratory changes during exercise.

Unit 5: Digestive System

- HP 5.1. Describe the functions of digestive system
- HP 5.2. Describe Salivary Secretion: Saliva: Composition. Functions. Regulation. Mastication
- HP 5.3. Discuss the stages and Function of Swallowing
- HP 5.4. Describe Stomach in terms of Functions. Gastric juice: Gland, composition, function, regulation. Gastrin: Production, function and regulation. Peptic ulcer. Gastric motility. Gastric emptying. Vomiting.
- HP 5.5. Describe Pancreatic Secretion: Composition, production, function. Regulation.
- HP 5.6. Discuss the Functions of liver, Gall bladder And Composition, functions of bile.

Unit 6: Renal System

- HP 6.1. Describe the functions of renal system. Nephrons – cortical and juxtamedullary. Juxta-glomerular apparatus. Glomerular membrane. Renal blood flow and its regulation. Functions of kidneys.
- HP 6.2. Discuss the Mechanism of Urine Formation: Glomerular Filtration: Mechanism of glomerular filtration. GFR – normal value and factors affecting. Renal clearance. Inulin clearance. Creatinine clearance.
- HP 6.3. Explain Tubular Reabsorption: Reabsorption of Na⁺, glucose, HCO₃⁻, urea and water. Filtered load. Renal tubular transport maximum. Glucose clearance: T_mG. Renal threshold for glucose.
- HP 6.4. Discuss the Mechanism of concentrating and diluting the Urine: Counter-current mechanism. Regulation of water excretion. Diuresis. Diuretics.
- HP 6.5. Describe Mechanism of micturition. Cystometrogram. Atonic bladder, automatic bladder.
- HP 6.6. Describe Acid-Base balance

Unit 7: Reproductive System

- HP 7.1. Discuss the physiology of reproductive organs. Sex determination. Sex differentiation. Disorder
- HP 7.2. Describe Male Reproductive System: Functions of testes. Pubertal changes in males. Spermatogenesis. Testosterone: action. Regulation of secretion. Semen.
- HP 7.3. Describe Female Reproductive System: Functions of ovaries and uterus. Pubertal changes in females. Oogenesis.
- HP 7.4. Hormones: estrogen and progesterone-action. Regulation of secretion.
- HP 7.5. Describe Menstrual Cycle: Phases. Ovarian cycle. Uterine cycle. Hormonal basis. Menarche. Menopause.
- HP 7.6. Describe Pregnancy: Pregnancy tests. Physiological changes during pregnancy. Functions of placenta. Lactation. Contraception methods

Unit 8: Endocrine System

- HP 8.1. Enumerate Major endocrine glands.
- HP 8.2. Describe classification, mechanism of action and Functions of hormones
- HP 8.3. Describe Pituitary hormones: Secretory cells, action on target cells, and regulation of secretion of each hormone.
- HP 8.4. Describe Thyroid hormone and calcitonin: secretory cells, synthesis, storage, action and regulation of secretion. Disorders: Myxedema, Cretinism, Grave's disease

- HP 8.5. Describe Parathyroid hormones: secretory cell, action, regulation of secretion. Disorders: Hypoparathyroidism. Hyperthyroidism. Calcium metabolism and its regulation.
- HP 8.6. Describe Adrenal Medulla: Secretory cells, action, regulation of secretion of adrenaline and noradrenaline. Disorders: Pheochromocytoma.
- HP 8.7. Describe Endocrine Pancreas: Secretory cells, action, regulation secretion of insulin and glucagon. Glucose metabolism and its regulation. Disorder: Diabetes mellitus.

Unit 9: Nerve Muscle Physiology

- HP 9.1. Discuss Resting membrane potential. Action potential – ionic basis and properties.
- HP 9.2. Describe Structure and functions of neurons. Classification, Properties and impulse transmission of nerve fibers. Nerve injury – degeneration and regeneration.
- HP 9.3. Describe Neuroglia: Types and functions
- HP 9.4. Classify Skeletal muscle Structure.
- HP 9.5. Discuss the physiology of neuromuscular transmission
- HP 9.6. Discuss the applied aspects of neuromuscular disorders.

Unit 10: Nervous System

- HP 10.1. Describe Organisation of CNS – central and peripheral nervous system.
- HP 10.2. Describe Functions of nervous system. Synapse: Functional anatomy, classification, Synaptic transmission. Properties
- HP 10.3. Discuss Sensory Mechanism: Sensory receptors: function, classification and properties. Sensory pathway: The ascending tracts, Posterior column tracts, lateral spinothalamic tract and the anterior spinothalamic tract – their origin, course, termination and functions. The trigeminal pathway
- HP 10.4. Discuss Sensory cortex. Somatic sensations: crude touch, fine touch tactile localization, tactile discrimination, stereo gnosis vibration sense,
- HP 10.5. Describe kinesthetic sensations. Pain sensation: mechanism of pain. Cutaneous pain – slow and fast pain, hyperalgesia. Deep pain. Visceral pain – referred pain.
- HP 10.6. Describe Motor Cortex. Motor pathway: The descending tracts – pyramidal tracts, extrapyramidal tracts – origin, course, termination and functions. Upper motor neuron and lower motor neuron. Paralysis, monoplegia, paraplegia, hemiplegia and quadriplegia.
- HP 10.7. Describe Muscle tone – definition, and properties hypotonia, atonia and hypertonia. UMNL and LMNL
- HP 10.8. Discuss Spinal cord Lesions: Complete transection and Hemi section of the spinal cord.
- HP 10.9. Describe Cerebellum: Functions. Cerebellar ataxia.

- HP 10.10. Describe Posture and Equilibrium: Postural reflexes – spinal, medullary, midbrain and cerebral reflexes.
- HP 10.11. Describe Functions of Thalamus and Hypothalamus: Nuclei. Thalamic syndrome
- HP 10.12. Describe Reticular Formation and Limbic System: Components and Functions.
- HP 10.13. Describe Structures and functions of Basal Ganglia: Parkinson's disease
- HP 10.14. Describe Cerebral Cortex: Lobes. Brodmann's areas and their functions. Higher functions of cerebral cortex – learning, memory and speech.
- HP 10.15. Describe Formation, composition, circulation and functions of CSF Lumbar puncture and its significance. Blood brain barrier. Hydrocephalus.
- HP 10.16. Describe Features and actions of parasympathetic and sympathetic nervous system

Unit 11: Physiology of Exercise – Explain the Effects of acute and chronic exercise on

- HP 11.1 Respiratory,
- HP 11.2 Cardio vascular
- HP 11.3 Musculoskeletal system

Practical: B.P.T. Human Physiology 102 Practical : HP (P)

HP (P) 12.1 Practical classes include

1. Hematology experiments,
2. Clinical examinations,
3. Amphibian chart, and
4. Recommended demonstrations.

HP (P) 12.2 Recommended demonstrations include but are not limited to:

- i. Differentiate Blood cells
- ii. Determine the blood cell counts
- iii. Determine Blood groups
- iv. Calculate bleeding and clotting time
- v. Observe the procedures of common blood investigations
- vi. Elicit superficial and deep tendon reflexes
- vii. Determine muscle tone
- viii. Interpret normal ECG wave pattern
- ix. Identify normal breath sound
- x. Differentiate Heart sounds including murmurs

HP (P) 12.3 Perform the following clinical examination procedures:

- i. Body Temperature measurement
- ii. Pulse rate
- iii. Blood Pressure
- iv. Oxygen saturation
- v. Respiratory rate

Recommended text Book for HP

1. Text book of Physiology –Anand & Manchanda, Tata McGraw Hill.
2. Human Physiology – Vol. 1 & 2, Chatterjee. CC, Calcutta. Medical Allied.
3. Concise Medical Physiology. Chaudhari, S.K, New Central Agency, Calcutta.
4. Principles of Anatomy and Physiology. Tortora & Grabowski –Harper Collins.
5. Text book of Practical Physiology – Ghai – Jaypee

Recommended Reference Books for HP

Text book of Medical Physiology –Guyton Arthur (Mosby.)

Best & Taylor's Physiological Basis of Medical Practice

West's Respiratory Physiology.

Nunn and Lumb's Applied Respiratory Physiology

Course Title: BIOCHEMISTRY (BC): Lecture (L)**BC 1.0. Subject Description and instruction to teacher**

The course in Biochemistry is designed to give the student an introductory knowledge of biochemistry of living organisms and nutrition, particularly in the human body. The major topics covered include the following: carbohydrate, lipid, amino acids, enzymes, nucleic acid, vitamins, minerals hormones, nutrition and clinical biochemistry. The details of chemical structures should be avoided. the emphasis should be on understanding the process of metabolism and relative contribution of nutrients. the importance of clinical biochemistry in diagnosis and management of disorders need to be highlighted

BC 1.0.1 Course Outcomes:

After completion of this course the student shall be able to

1. Describe the structure, composition and functions of cell.(K)
2. Describe the structure and functions of cell membrane.(K)
3. Explain the metabolism of carbohydrates, Lipids, proteins and amino acids.(K)
4. Describe the types, composition and utilization of vitamins (K)
5. Explain the effect of exercise related biochemical changes and its application to exercise prescription (KH)

BC 1.0.2 Teaching Learning Methods:

1. Lecture
2. Tutorial
3. Demonstration using models including digital
4. Flipped class
5. Dissection

BC 1.0.3 Assessment Methods:

1. MCQs
2. Long & Short Essays

Course Contents: B.P.T. BC 103 (L)

SECTION A

Unit 1

- BC 1.1. Acid-Base balance - Acids, bases and buffers, pH. Buffer systems of the body, bicarbonate buffer system Role of lungs and kidneys in acid base balance, Acid base imbalance.
- BC 1.2. Carbohydrate Chemistry –
1. Definition, general classification with examples, Glycosides bond
 2. Structures, composition, sources, properties and functions of Monosaccharides, Disaccharides, Oligosaccharides and Poly- saccharides.
 3. Glycosaminoglycan (mucopoly saccharides)
 4. Carbohydrate Metabolism - Introduction, Glycolysis – Aerobic, Anaerobic Citric acid cycle, Substrate level phosphorylation.
 5. Glycogen metabolism – Glycogenesis, Glyco Geno lysis, Metabolic disorders glycogen, Gluconeogenesis, Cori cycle Hormonal regulation of glucose, Glycosuria, Diabetes mellitus
 6. Role of carbohydrates in diet: Digestible carbohydrates and dietary fibers.
- BC 1.3. Lipid Chemistry –
1. Definition, general classification
 2. Definition, classification, properties and functions of Fatty acids, Triacylglycerol, Phospholipids, Cholesterol
 3. Essential fatty acids and their importance
 4. Lipoproteins: Definition, classification, properties, Sources and function Ketone bodies
 5. Role of lipids in diet
- BC 1.4. Amino-acid Chemistry –
1. Amino acid chemistry: Definition, Classification, Peptide bonds
 2. Peptides: Definition, Biologically important peptides
 3. Protein chemistry: Definition, Classification, Functions of proteins,
 4. Role of proteins in diet: Quality of proteins - Biological value, net protein utilization, Nutritional aspects of proteins-essential and non- essential amino acids. Nitrogen balance

BC 1.5. Nutrition –

1. Introduction, Importance of nutrition Calorific values, Respiratory quotient – Definition, and its significance Energy requirement of a person - Basal metabolic rate: Definition, Normal values, factor affecting BMR Special dynamic action of food.
2. Physical activities - Energy expenditure for various activities. Calculation of energy requirement of a person
3. Balanced diet
 - i. Recommended dietary allowances
 - ii. Nutritional disorders.

Unit 2:

BC 2.1. Enzymes – Definition, Active site, Cofactor (Coenzyme, Activator), Proenzyme. Classification with examples, Factors effecting enzyme activity, Enzyme inhibition and significance, Isoenzymes, Diagnostic enzymology (clinical significance of enzymes)

BC 2.2. Nucleotide and Nucleic acid Chemistry -

1. Nucleotide chemistry: Nucleotide composition, functions of free nucleotides in body.
2. Nucleic acid (DNA and RNA) chemistry: Difference between DNA and RNA, Structure of DNA (Watson and Crick model), Functions of DNA. Structure and functions of tRNA, rRNA, mRNA.

BC 2.3. Vitamins -

1. Definition, classification according to solubility,
2. Individual vitamins - Sources, Coenzyme forms, functions, RDA, digestion, absorption and transport, deficiency and toxicity.

BC 2.4. Mineral Metabolism- Definition, Sources, RDA, Digestion, absorption, transport, excretion, functions, disorder of Individual minerals - Calcium, phosphate, iron, Magnesium, fluoride, selenium, molybdenum, copper. Phosphate, calcium and iron in detail.

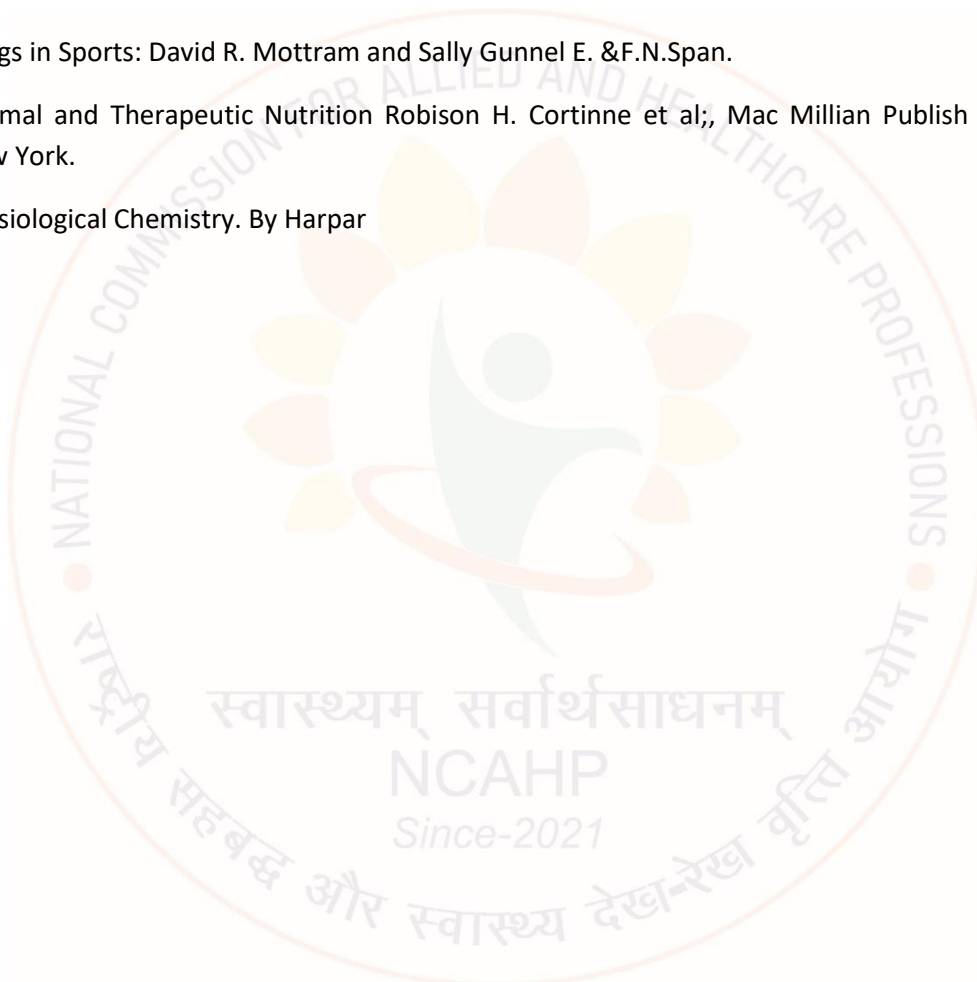
BC 2.5. Clinical Biochemistry - Normal levels of blood and urine constituents, Relevance of blood and urine levels of Glucose, Urea, Uric acid, Creatinine, Calcium, Phosphates, pH and Bicarbonate. Liver function tests, Renal function tests.

Recommended Text Books for BC

1. Textbook of Biochemistry- Chatterjee M.N.-Jaypee Brothers.
2. Textbook of Biochemistry for Medical Students Vasudeval D.M. Jaypee Brothers.
3. Clinical Biochemistry- metabolic & Clinical aspects- Marshall &Bangert- Churchill Livingstone.
4. Biochemistry Southerland-Churchill Livingstone.

Recommended Reference books for BC

1. Drugs in Sports: David R. Mottram and Sally Gunnel E. &F.N.Span.
2. Normal and Therapeutic Nutrition Robison H. Cortinne et al,, Mac Millian Publish Company, New York.
3. Physiological Chemistry. By Harpar



Course Title: FUNDAMENTALS OF EXERCISE MODALITIES: FoEM: Theory (L) Practical (P)**FoEM 1.0. Subject Description and instruction to teacher**

In this course, the students will learn the principles and effects of exercise as a therapeutic modality and will learn the techniques in the restoration of physical functions. After the course on exercise therapy student will be able to understand the different types of exercise for the benefit of patient in different situations and conditions both in health and disease or disorder. The emphasis should be giving hands on training on execution of various types of exercises and passive procedures. Besides lecture and demonstration, the emphasis should be placed on making the student capable to perform the exercise procedures independently using DOAP [demonstrate, observe, assist, perform] model of teaching learning

FoEM 1.0.1 Course Outcomes: Fundamentals of Exercise Modalities

1. Apply the principles of physics in describing movements (Force, inertia, Laws of motion) (KH)
2. Explain planes and axis of movements (KH)
3. Discuss the methods of measuring joint movements (KH)
4. Demonstrate joint movement measurements (Including electronic goniometer) (SH)
5. Demonstrate fundamental and derived positions and muscle actions (SH)
6. Demonstrate transfer techniques (SH)
7. Perform basic assessment techniques (Motor, sensory, coordination and balance) (SH)
8. Demonstrate knowledge and skills in prescribing basic movement aids (SH)

FoEM 1.0.2 Teaching Learning Methods:

1. Lecture
2. Flipped class
3. Video demonstration
4. Demonstration
5. Lab works

FoEM 1.0.3 Assessment Methods:

1. MCQs
2. Long & Short Essay
3. Assignments
4. Viva Voce
5. OSPE

Unit 1: Basic principles

FoEM 1.1. Describe the aims of Exercise Therapy, The techniques of Exercise Therapy, Approach to patient's problems, and Assessment of patient's condition – Measurements of Vital parameters

FoEM 1.2. Apply the principles of mechanics applied to Exercise Therapy: Force, Composition, Resolution, Equilibrium- stable, unstable, neutral gravity-LOG-COG, levers-types, Speed, velocity, work, energy, power, acceleration, momentum, friction and inertia

FoEM 1.3. Discuss Muscle work group action of muscles, angle of pull and mechanical efficiency of the muscles.

Unit 2: Starting and Derived Positions

FoEM 2.1 Demonstrate the starting positions, their muscle work, effects and uses and Standing, Kneeling, Sitting, Lying and Hanging.

FoEM 2.2 Demonstrate derived positions. Discuss the muscle work of each derived position Unit 3: Measurement of Joint Range

FoEM 2.3 Demonstrate Different methods of measuring range of motion (ROM).

FoEM 2.4 Discuss Reliability and validity of goniometry. Functional ROM and normal range of motion of various joint. Technique of Goniometry.

FoEM 2.5 Perform ROM measurement of individual joint's using goniometer.

Unit 3: Muscle testing

FoEM 3.1 Discuss the Principles & Aims, Indications & Limitations, and Techniques of MMT for group & individual testing

FoEM 3.2 Demonstrate Manual Muscle testing procedure

FoEM 3.3 Perform MMT for upper limb, lower limb spine and face muscles

Unit 4: Classification of therapeutic exercise

- FoEM 4.1. Classify therapeutic exercises: Technique, effects, therapeutic use
- FoEM 4.2. Demonstrate Active Movements
- FoEM 4.3. Discuss active movements in terms of Definition of strength, power & work, endurance, muscle actions, Causes of decreased muscle performance,
- FoEM 4.4. Explain the Physiological adaptation to training: Strength & Power, Endurance.
- FoEM 4.5. Demonstrate Free exercise: Classification, principles, techniques, indications, contraindications, effects and uses
- FoEM 4.6. Demonstrate Active Assisted Exercise:
- FoEM 4.7. Discuss the principles, techniques, indications, contraindications, effects and uses Assisted-Resisted Exercise: principles, techniques, indications, contraindications, effects and uses
- FoEM 4.8. Demonstrate Resisted Exercise: Discuss the principles, indications, contraindications, precautions & techniques, effects and uses Types of resisted exercises: Manual and Mechanical resistance exercise, Isometric exercise, Dynamic exercise: Concentric and Eccentric, Dynamic exercise: Constant versus variable resistance, Isokinetic exercise, Open-Chain and Closed-Chain exercise
- FoEM 4.9. Demonstrate Passive Movements: Discuss Causes of immobility, Classification of Passive movements, Specific definitions related to passive movements, Principles of giving passive movements, Indications, contraindications, effects of uses, Techniques of giving passive movements demonstrate Mobilization exercises of the joints region-wise-passive, active

Unit 5

- FoEM 5.1 Classify various types of soft tissue manipulation techniques.
- FoEM 5.2 Discuss Physiological effects, therapeutic effects and contraindications of soft tissue manipulation.
- FoEM 5.3 Describe effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc.
- FoEM 5.4 Perform effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc.

PRACTICAL B.P.T. Fundamentals of Exercise Modalities 104 Practical : FoEM (P)

The students of exercise therapy are to be trained in Practical Laboratory work for all the topics discussed in theory. List of practical (student shall be able to perform independently)

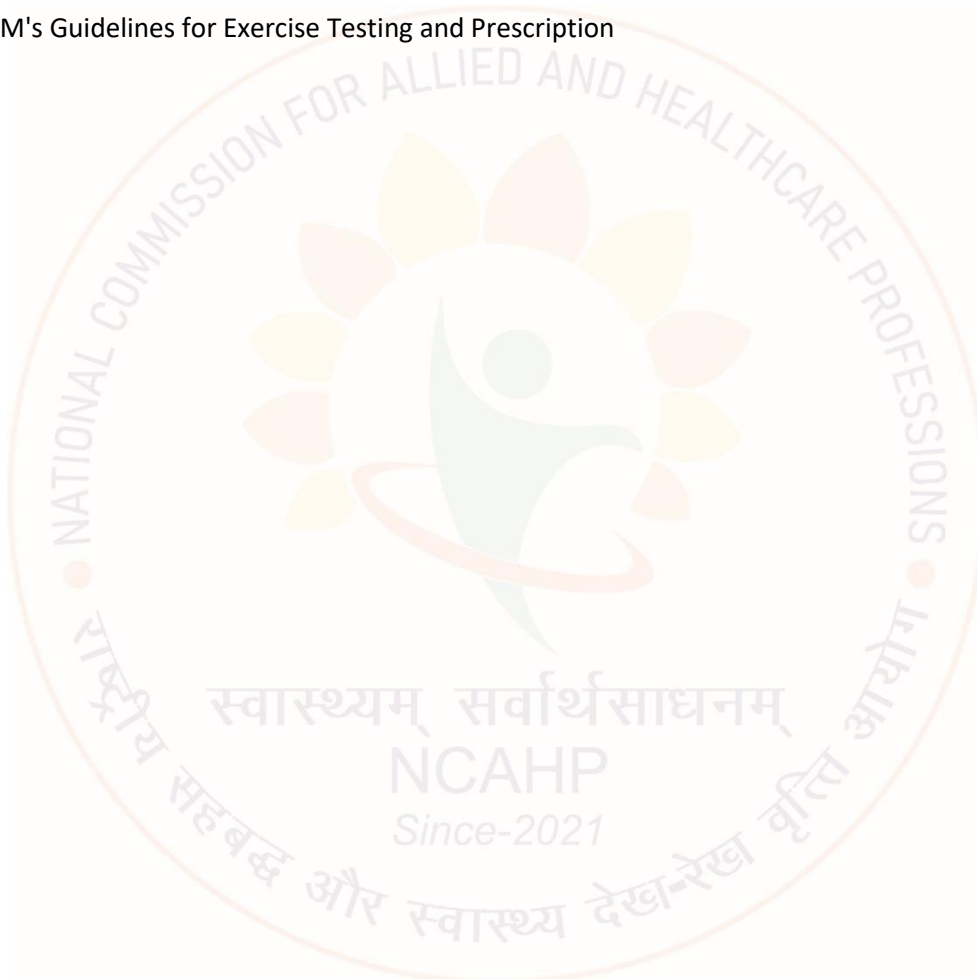
- FoEM (P) 6.1. Demonstrate the different types of muscle contraction, muscle work, group action of muscles and co-coordinated movements on self
- FoEM (P) 6.2. Demonstrate various fundamental and derived positions. And describe muscle work, and uses on self
- FoEM (P) 6.3. Measure the ROM of joints using hand held goniometer – upper limb, lower limb & trunk on human model
- FoEM (P) 6.4. Demonstrate the relaxed passive movement of joints of upper limb and lower limb on human model
- FoEM (P) 6.5. Instruct the patient to perform of the active mobilisation exercises of joints of upper limb and lower limb on human model
- FoEM (P) 6.6. Perform passive mobilisation exercises of different joints region wise on self / human model
- FoEM (P) 6.7. Demonstrate the testing of muscle strength/ function region wise – upper limb, lower limb and trunk On human model
- FoEM (P) 6.8. Perform all the soft tissue manipulative techniques region wise – upper limb, lower limb, neck, back and face On human model
- FoEM (P) 6.9. Demonstration ONLY [to be shown to the student by the teacher]
 - 1. Digital goniometry
 - 2. Pelvic inclinometry
 - 3. Dynamometry
 - 4. Accessory passive movement

Recommended Text Books for FoEM

- 1. Principle of Exercise Therapy -Gardiner - C.B.S. Delhi
- 2. Practical Exercise Therapy - Hollis - Blackwell Scientific Publications.
- 3. Therapeutic Exercises Foundations and Techniques - Kisner and Colby -F.A. Davis.
- 4. Principles and practices of therapeutic massage – Sinha 3rd edition. Jaypee brothers Delhi
- 5. Margaret Hollis-Textbook of Massage.
- 6. Muscle testing and functions - Kendall - Williams & Wilkins.
- 7. Daniels and Worthingham's - Muscle testing - Hislop & Montgomery - W.B. Saunders.
- 8. Measurement of Joint Motion: A Guide to Goniometry - Norkins& White - F.A. Davis.

Recommended reference books for FoEM

1. Therapeutic Exercises - Basmajian - Williams and Wilkins.
2. Licht SH, editor. Massage, manipulation, and traction. E. Licht;
3. World Health Organization; Global Strategy on Diet, Physical Activity and Health
4. McArdle WD, Katch FI, Katch VL. Exercise physiology: nutrition, energy, and human performance. Lippincott Williams & Wilkins; 2010.
5. Kennedy-Armbruster C, Yoke M. Methods of group exercise instruction. Human Kinetics; 2014.
6. ACSM's Guidelines for Exercise Testing and Prescription



Course Title: Fundamentals of Electro Physical Agents (FoEA): Theory (L) Practical (P)**FoEA 1.0. Subject Description and instruction to teacher**

The aim of this course is to familiarize the students to the concept and basic principles of physics related electrotherapy. The student will be taught about physics related to electrotherapy and application on human body tissues. In this course the student will learn the Principles, Techniques, and Effects, Indication, Contra-Indication and the dosage parameter for various electro therapeutic modalities. The objective of this course is that after attending the lectures, demonstration, practical and clinics the student will be able to list the indications, contra indications, dosages of electro therapy modalities, demonstrates the different techniques, and describe their effects on various conditions

FoEA 1.0.1. Course Outcomes: Fundamentals of Electro Physical Agents

After completion of this course the student shall be able to

1. Explain fundamental principles of physics related to electricity production, its transmission.
2. Explain the production, physiological and therapeutic effects Biophysics, principles, therapeutic uses, indications, contraindications electrical stimulation agents
3. Demonstrate competencies in operational skills of equipment and patient preparation and techniques of application of electrical stimulation agents
4. Discuss the physiology and pathophysiology of pain.
5. Discuss theories of pain and its implications to physiotherapy clinical decision making.
6. Explain physiological effects, therapeutic uses, indications, contraindications and demonstrate practical/operational skills required Demonstrate competencies in equipment maintenance, care and safety- precautions

FoEA 1.0.2. Teaching learning methods

1. Lecture
2. Flipped class
3. Video demonstration
4. Demonstration
5. Lab works

FoEA 1.0.3. Assessment methods

1. MCQs
2. Long & Short Essay
3. Viva Voce
4. OSPE



Course Contents: B.P.T. FoEA 105 Theory (L)

Unit 1

FoEA 1.1. Physical Principles In Relation to Physiotherapy:

1. Structure and Properties of matter-solids, liquids and gases, adhesion, surface tension, viscosity, density and elasticity. Structure of atoms, molecules, elements and compounds, electron theory, static and current electricity.
2. Conduction, Insulators, Potential difference, Resistance and Intensity. Ohm's Law its application to AC and DC currents.
3. Rectifying Devices-Thermionic valves, semiconductors, Transistors, Amplifiers, Transducers, Oscillator Circuits. Capacitance, Condensers in DC and AC circuits.
4. Display devices and indicators-analogue & digital.

FoEA 1.2. Effects of Current Electricity

1. Chemical effects- ions and electrolytes, ionization, production of E.M.F by chemical actions. Magnetic effects, Molecular theory of Magnetism. Magnetic fields, electromagnetic induction.
2. Milli ammeter and voltmeter, transformers and choke coil, thermal effects-joules law and heat production.
3. Physical principles of light and its properties.
4. Physical principles of sound and its properties.
5. Electromagnetic spectrum-biophysical application.

FoEA 1.3. Electrical Supply

1. Brief outline of main supply of electric current. Dangers short circuits, electric shocks.
2. Precautions safety devices, earthing, fuses etc. First and initial management of electric shock.

Unit 2

FoEA 2.1. Low Frequency Currents

Introduction to direct, alternating and modified currents.

1. **Iontophoresis:** Biophysics, principles, therapeutic uses, indications, contra-indications, operational skills of equipment and patient preparation.
2. **Faradic current:** Biophysics, principles, therapeutic uses, indications, contra-indications, operational skills of equipment and patient preparation
3. **Interrupted direct current:** Biophysics, principles, therapeutic uses, indications, contra-indications, operational skills of equipment and patient preparation
4. **Transcutaneous Electrical Nerve Stimulations (TENS)** Types of low frequency, pulse widths, frequencies and intensities used as TENS applications, Theories of pain relief by TENS. Principles of clinical application, effects and uses, indications, contraindications, precautions. Operational skills of equipment patient preparation.

Unit 3

FoEA 3.1. Electrical Reactions and Electro-Diagnostic Tests

1. Electrical stimuli and normal behavior of nerve and muscle tissue. Types of lesions and development of reaction of degeneration.
2. Faradic/Intermittent direct current test.
3. S.D. Curve and its application. Chronaxie, Rheobase and pulse ratio.

Unit 4

FoEA 4.1. **Infrared Rays**-Wavelength, frequency, types and sources of IRR generation techniques of irradiation, physiological and therapeutic effects indications, contraindications, precautions, Operational skills of equipment and patient Preparation.

FoEA 4.2. **Superficial Heat:** Paraffin wax bath, moist heat, electrical heating pads.

1. Mechanism of production.
2. Mode of heat transfer.
3. Physiological & therapeutic effects.
4. Indications, contraindications, precautions, operational skills of equipment and patient preparation.

PRACTICAL B.P.T. Fundamentals of Electro Physical Agents 105 Practical : FoEA (P)

The students are to be trained in Practical Laboratory work for all the topics discussed in theory.

List of practical (student shall be able to perform independently)

- FoEA (P) 5.1.** Identify components and safety devices involved in electric supply of the electrotherapy department.
- FoEA (P) 5.2.** Experience sensory and motor stimulation of nerves and muscles by various types of low frequency currents on self.
- FoEA (P) 5.3.** Locate and stimulate different motor points region wise including the upper & lower limb, trunk face. On human model
- FoEA (P) 5.4.** Demonstrate the application of special techniques of low frequency current including Faradic foot bath, faradism under pressure
- FoEA (P) 5.5.** Demonstrate the application of techniques of Iontophoresis.
- FoEA (P) 5.6.** Demonstrate the plotting of strength duration curve and find out Chronaxie and Rheobase.
- FoEA (P) 5.7.** Demonstrate the techniques of application of various types of IR lamps to various body regions.
- FoEA (P) 5.8.** Demonstrate the techniques of application of paraffin wax bath to various body regions
- FoEA (P) 5.9.** Demonstrate the techniques of application of TENS to various body regions

Recommended Text Books for FoEA

1. Electro therapy Explained: Principles & Practice Low & Reed, Butterworth Heinemann.
2. Claytons Electro therapy, Forster & Palastange Baillier Tindal.

Recommended reference books for FoEA

1. Principles & Practice of Electrotherapy, Kahn, Churchill Livingstone
2. clinical electrotherapy Currier and Nelson
3. Therapeutic Heat & Cold, Lehmann, Williams & Wilkins.

COURSE TITLE- PSYCHOLOGY AND SOCIOLOGY: (PSY) and (SOC) Theory (L)

SECTION A

Course Title: Psychology (PSY)

PSY 1.0. Subject Description and instruction to teacher

Human Psychology involves the study of various behavioral patterns of individuals, theories of development, normal and abnormal aspects of motor, social, emotional and language development, communication and interaction skills appropriate to various age groups. The study of these subjects will help the student to understand their clients while assessment and while planning appropriate treatment methods.

PSY 1.0.1. Course Outcomes: After completion of this course the student shall be able to General and Clinical Psychology

1. Describe the principles of psychology and its relationship to human behaviour (K)
2. Discuss the theories of psychology and its implications to health. (KH)
3. Discuss physiology of emotions and its applications in health care (KH)
4. Explain the theories of motivation (KH)
5. Discuss the theories, concepts, development and assessment of personality. (KH)
6. Explain the concepts of intelligence and its assessment(KH)
7. Describe the psychological concepts of frustration. (K)
8. Apply the principles of psychology in clinical decision making. (KH)

Course Contents: B.P.T. (PSY) 106 (L)

UNIT 1:

PSY 1.1. Introduction to Psychology

1. Describe Schools: Structuralism, functionalism, behaviorism, Psychoanalysis.
2. Describe Methods: Introspection, observation, inventory and experimental method.
3. Describe in brief Branches: pure psychology and applied psychology
4. Describe importance of study of Psychology to physiotherapy

Unit 2:

PSY 1.2. Developmental Psychology

1. Describe Growth and Development Nature of growth and development, Characteristics of growth and development. Developmental periods of infancy.
2. Describe Childhood, adolescence, adulthood and old age, Factors affecting growth and development.
3. Describe Role of heredity and environment and their relative importance in physical, psychological and social development

Unit 3:

PSY 1.3. Emotions and perception

1. Describe Emotions Concept and definition, Theories of emotions, Physiological changes due to emotional state. Nature and control of anger, fear and anxiety.
2. Describe Sensation, attention and perception Meaning and definition.
3. Describe Types of sensation and Perception.
4. Describe Principles of Perception. Illusion and hallucination concept of 1attention and Factors determining attention.

Unit 4:

PSY 1.4. Motivation and Learning

1. Definition, needs, drives and motives, primary motives and secondary motives, Achievement motivation.
2. Discuss the theories of motivation.
3. Describe theories of Learning
4. Describe Concepts, Characteristics, Types, Laws of Learning, Theories of learning, Trial and Error theory,

5. Describe Conditioning-classical and operant, Insight theory of learning, Factors influencing learning.
6. Describe the effective ways to learn: Massed/Spaced, Whole/Part, Recitation/Reading, Serial/Free recall, Incidental/Intentional learning, Knowledge of results, association, organization, and mnemonic methods.
7. Describe Intelligence; Discuss Characteristics, Types. IQ. Mental age.
8. Describe Assessment of intelligence, intelligence tests-verbal and performance test

Unit 5:

PSY 1.5. Psychology of frustration and Stress

1. Describe Frustration and stress under the following headings: Definition. Causes, Sources of frustrations, Conflict, Different types of conflicts, Adjustment and maladjustment. Defense Mechanism.
2. Describe Different types of Anxiety, Tension, Physiological symptoms, causes reactions to stresses, psycho-somatic problems, coping strategies.
3. Discuss the management of stress

Unit 6:

PSY 1.6. Personality

1. Define Personality and describe factors in personality development
2. Describe tools of Measurement of Personality:- observation, situational test, questionnaire, rating scale, interview, and projective techniques.
3. Describe Defense Mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjection, acting out.
4. Describe psychological reactions of a patient during admission and treatment in terms of possible Anxiety, shock denial, suspicion. Loneliness, shame, guilt, rejection, fear, withdrawal, depression, egocentric, justify and loss of hope.

Unit 7:

PSY 1.7. Social psychology

1. Describe Different types of leaders and Different theoretical approaches to leadership.
2. Describe development of attitude and Change of attitude.

Unit 8:

PSY 1.8. Clinical psychology

1. Describe Models of training, abnormal behavior assessment, clinical judgement, psychotherapy, self-management methods, physiotherapist patient interaction, aggression,
2. Discuss the following
 - i. Self-imaging
 - ii. stress management
 - iii. assertive training
 - iv. Group therapy
 - v. Body awareness
 - vi. Pediatric, child and geriatric clinical psychology.

Recommended Text Books for PSY

1. Morgan C.T. & King R.A. Introduction to Psychology– recent edition [Tata McGraw-Hill publication]
2. Munn N.L. Introduction to Psychology [Premium Oxford, I.B.P. publishing.]
3. Clinical Psychology –Akolkar
4. Hurlock EB. Development psychology. McGraw-Hill;

Recommended reference books for PSY

1. Psychology Indian continent edition Raron RA mishra 2018
2. Abnormal Psychology Sarason IG Sarason BR Prentice Hall India
3. Introduction to psychology Atkinson RL Hilgard ER 2019
4. Development a lifespan approach Johnson ML 2020 Pearson education
5. Abnormal psychology an integrative approach Thomson brooks / Cole publishing
6. Theories of counselling and psychotherapy a case approach Murdock nl person education New Zealand
7. Theories of personality. Hall CS, Lindzey G Wiley and sons inc

SECTION B

Course Title: Sociology (SOC)

SOC 1.0. Subject Description and instruction to teacher

The purpose of this course is to introduce student to the basic sociology concepts, principles and social process, social institutions in relation to the individual, family and community. The student should be sensitized to the influences of various social factors in health and disability. Besides class room Lecture the Case studies, Field visit, role play, debates and Panel discussions should be used to generate interest and make the subject meaningful.

SOC 1.0.1. Course Outcomes:

After completion of this course the student shall be able to Sociology

1. Discuss the sociological concepts in relations to health, healthcare, and disorders.(KH)
2. Explain social theories in relations to health and health care.(KH)
3. Discuss biomedical and biopsychosocial health models.(KH)
4. Explain Concept of social groups, influence of groups on health and sickness, the role of primary groups and secondary groups in the hospitals and rehabilitation settings (KH)
5. Discuss the influence of family on human personality, individual's health, family and nutrition and the effects of sickness on family along with psychosomatic disease
6. Analyse the social cause for activity limitations and participatory restrictions caused by various disorders.(KH)

SOC 1.0.2. Teaching Learning Methods:

1. Lecture
2. Case studies
3. Field visit
4. Role play
5. Debate
6. Panel discussions

SOC 1.0.3. Assessment Methods:

1. Short Essay
2. Assignment
3. Presentations
4. Debate

Course Content: Course Contents: B.P.T. (SOC) 106 (L)

Unit 1

SOC 1.1 Introduction to sociology

SOC 1.2 Meaning- Definition and scope of sociology

SOC 1.3 Its relation to Anthropology, Psychology, Social Psychology.

SOC 1.4 Methods of Sociological investigations- Case study, social survey, questionnaire, Interview and opinion poll methods.

SOC 1.5 Importance of its study with special reference to Health Care Professionals.

SOC 1.6 Social Factors in Health and disease situations:

1. Meaning of social factors
2. Role of social factors in health and illness

SOC 1.7 Socialization:

1. Meaning and nature of socialization.
2. Primary, Secondary and Anticipatory socialization.
3. Agencies of socialization.

SOC 1.8 Social Groups:

Concepts of social groups, influence of formal and informal groups on health and sickness. The role of primary groups and secondary groups in the hospital and rehabilitation setup.

SOC 1.9 Family:

1. The family, meaning and definitions.
2. Functions of types of family
3. Changing family patterns
4. Influence of family on the individuals health, family and nutrition, the effects of sickness in the family and psychosomatic disease and their importance to physiotherapy.

Unit 2

SOC 2.1. Community:

1. Rural community: Meaning and features –Health hazards of ruralities, health hazards to tribal community.
2. Urban community: Meaning and features- Health hazards of urbanities.

SOC 2.2. Culture and Health:

1. Concept of Health
2. Concept of Culture
3. Culture and Health
4. Culture and Health Disorders

SOC 2.3. Social change:

1. Meaning of social changes.
2. Factors of social changes.
3. Human adaptation and social change
4. Social change and stress.
5. Social change and deviance.
6. Social change and health programme
7. The role of social planning in the improvement of health and rehabilitation.

SOC 2.4. Social Problems of disabled: Consequences of the following social problems in relation to sickness and disability, remedies to pre-vent these problems.

1. Population explosion
2. Poverty and unemployment
3. Beggary
4. Juvenile delinquency
5. Prostitution
6. Alcoholism
7. Problems of women in employment
8. Geriatric problems
9. Problems of underprivileged.

SOC 2.5. Social Security: Social security and social legislation in relation to the disabled.

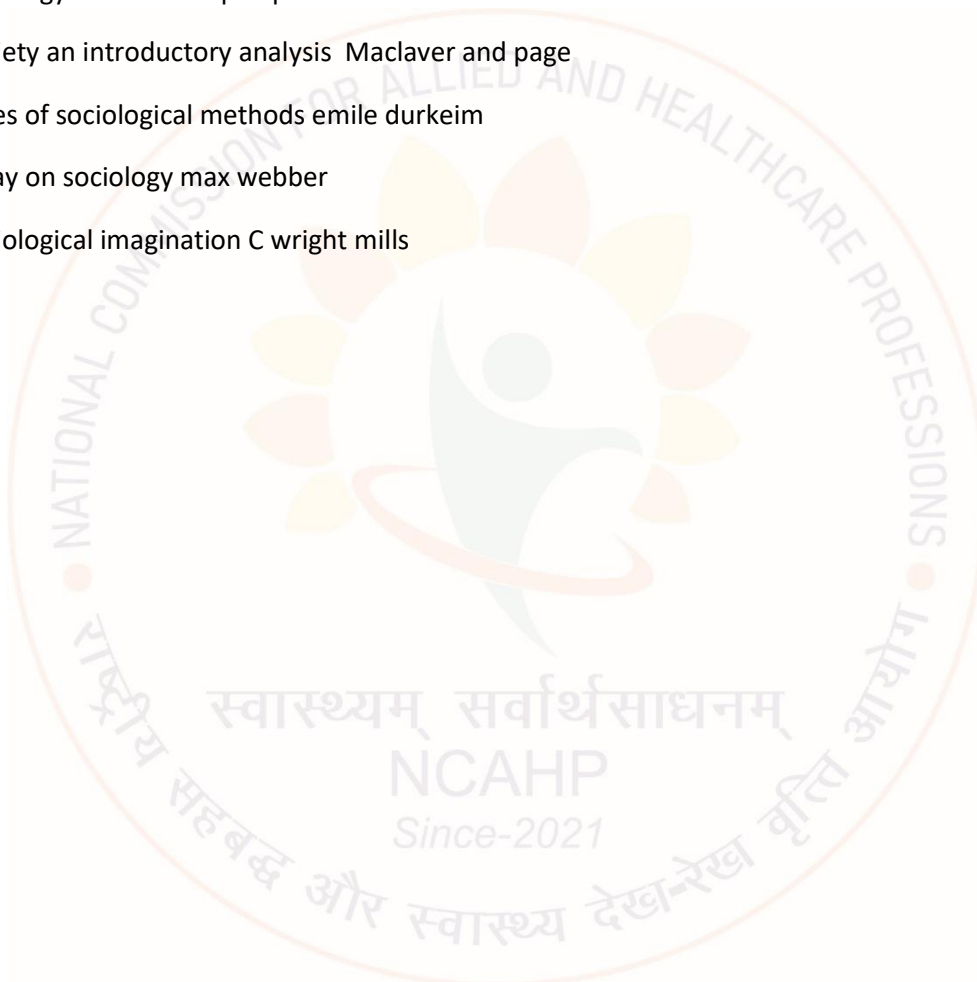
Recommended Text Books for SOC

1. McGee - Sociology - Drydon Press Illinois.
2. Kupuswamy - Social Changes in India - Vikas, Delhi.
3. Ahuja - Social Problems - Bookhive, Delhi.
4. Ginnsberg - Principles of Sociology - Sterling Publications.

5. Parter & Alder - Psychology & Sociology applied to medicine - W.B. Saunders.
6. Julian - Social Problems - Prentice Hall. Indian Social Problems - Madan, Vol-I-Madras
7. Bhushan, V., & Sachdeva, D. R. (2005). *Introduction to sociology*. Kitab Mahal.

Recommended Reference Books for SOC

1. Sociology Anthony gidden
2. Sociology themes and perspectives Haralambos and holborn
3. Society an introductory analysis Maclaver and page
4. Rules of sociological methods emile durkeim
5. Essay on sociology max webber
6. Sociological imagination C wright mills



COURSE TITLE- FUNDAMENTALS of Health care delivery System In India INTRODUCTION TO NATIONAL HEALTHCARE DELIVERY SYSTEM IN INDIA: (FoHC) : Theory (L)

FoHC 1.0. SUBJECT DESCRIPTION: The course provides the students a basic insight into the main features of Indian health care delivery system and how it compares with the other systems of the world. Topics to be covered under the subject are as follows:

Course Contents: B.P.T. FoHC 107 Theory

SECTION-A

- FoHC 1.1.** Introduction to healthcare delivery system
- FoHC 1.2.** Healthcare delivery system in India at primary, secondary and tertiary care
- FoHC 1.3.** Community participation in healthcare delivery system
- FoHC 1.4.** Health system in developed countries.
- FoHC 1.5.** Private Sector
- FoHC 1.6.** National Health Mission
- FoHC 1.7.** National Health Policy
- FoHC 1.8.** Issues in Health Care Delivery System in India

SECTION- B

- FoHC 1.9.** National Health Programme- Background objectives, action plan, targets, operations, achievements and constraints in various National Health Programme.
- FoHC 1.10.** Health scenario of India- past, present and future
- FoHC 1.11.** Introduction to the profession of physiotherapy role of physiotherapy in national health issues and the expectations of society from physiotherapists
- FoHC 1.12.** The concepts of health and disease, risk factors, and the role of health promotion and disease prevention
- FoHC 1.13.** Explore the corporatization of health care.
- FoHC 1.14.** Identify the globalisation of health care.
- FoHC 1.15.** Assess the prospects of new health care reform.
- FoHC 1.16.** Understand various types of health services professionals and their training, practice requirements, and practice settings.

FoHC 1.17. Differentiate between primary care and specialty care, and identify the causes of the imbalance between primary care and specialty care

FoHC 1.18. Study the role of health care financing and its impact on the delivery of health care.

FoHC 1.19. Understand the basic concept of insurance and how general insurance terminology applies to health insurance.



COURSE TITLE - ENGLISH, COMMUNICATION AND SOFT SKILLS: (EG) : Theory (L)

EG 1.0. Subject description: The objective of this course is to enable the student to effectively communicate with patient, colleague and professional. The student will also be able to understand and implement the basic communication skills required for personal, hospital, and department management and interpersonal management.

EG 1.0.1. Course outcomes

Apply basics of grammar and writing skills apply and communicate ideas orally and in writing with a high level of proficiency use appropriate expressions in varied situations and topics of interest, speak in English both in terms of fluency and comprehensibility demonstrate independence in using basic language structure in oral and written

Course Contents: B.P.T. EG 108 Theory

Major topics to be covered under Communication course –

SECTION A

- EG 1.1.** Basic Language Skills: Grammar and Usage.
- EG 1.2.** Business Communication Skills. With focus on speaking - Conversations, discussions, dialogues, short presentations, pronunciation.
- EG 1.3.** Teaching the different methods of writing like letters, E-mails, report, case study, collecting the patient data etc. Basic compositions, journals, with a focus on paragraph form and organization.
- EG 1.4.** Basic concepts & principles of good communication

SECTION-B

- EG 1.5.** Special characteristics of health communication
- EG 1.6.** Types & process of communication – verbal, non-verbal and written communication. Upward, downward and lateral communication.
- EG 1.7.** Therapeutic communication: empathy versus sympathy.
- EG 1.8.** Communication methods for teaching and learning.
- EG 1.9.** Communication methods for patient education.
- EG 1.10.** Barriers of communication & how to overcome.

COURSE TITLE- COMPUTERS AND INFORMATION SCIENCE : (IT): Theory (L), Practical (P)

IT 1.0. SUBJECT DESCRIPTION: The students will be able to appreciate the role of computer technology. The course has focus on computer organization, computer operating system and software, and MS windows, Word processing, Excel data worksheet and PowerPoint presentation.

IT 1.0.1. Course outcomes

1. To know the parts of computer
2. To have working knowledge of a computing system
3. Use computer for word processing and presentation and data management CO4 use the internet for personal and professional purpose
4. Understand the role of digital technology in the Health sciences

Course Contents: B.P.T. IT 109 Theory

IT 1.1. Introduction to computer: Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages.

IT 1.2. Input output devices: Input devices (keyboard, point and draw devices, data scanning devices, digitizer, electronic card reader, voice recognition devices, vision-input devices), output devices(monitors, pointers, plotters, screen image projector, voice response systems).

IT 1.3. Processor and memory: The Central Processing Unit (CPU), main memory.

IT 1.4. Storage Devices: Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices.

IT 1.5. Introduction of windows: History, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows (opening, closing, moving, resizing, minimizing and maximizing, etc.).

IT 1.6. Introduction to MS-Word: introduction, components of a word window, creating, opening and inserting files, editing a document file, page setting and formatting the text, saving the document, spell checking, printing the document file, creating and editing of table, mail merge.

IT 1.7. Introduction to Excel: introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs.

IT 1.8. Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs/ photos/ Videos.

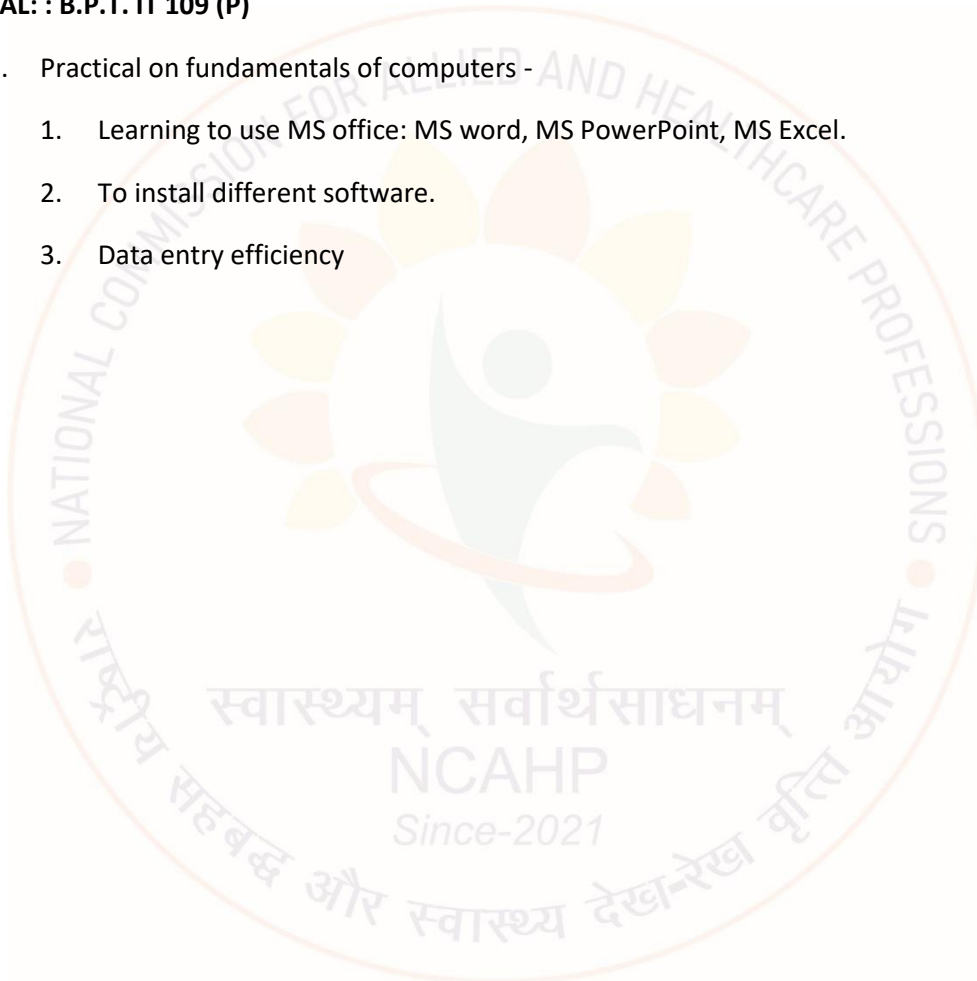
IT 1.9. Introduction of Operating System: introduction, operating system concepts, types of operating system.

- IT 1.10. Computer networks:** introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network.
- IT 1.11. Internet and its Applications:** definition, brief history, basic services (E-Mail, File Transfer Protocol, telnet, the World Wide Web (WWW)), www browsers, use of the internet.
- IT 1.12.** Application of Computers in clinical settings.

PRACTICAL: : B.P.T. IT 109 (P)

IT (P) 2.1. Practical on fundamentals of computers -

1. Learning to use MS office: MS word, MS PowerPoint, MS Excel.
2. To install different software.
3. Data entry efficiency



Course Code: B.P.T 110: CLINIC ORIENTATION AND VISIT (Cor)

- COr 1.0. The objective of this particular section of the foundation course is to sensitize potential learners with essential knowledge; this will lay a sound foundation for their learning across the under-graduate program and across their career. Innovative teaching methods should be used to ensure the attention of a student and make them more receptive such as group activities, interactive fora, role plays, and clinical bed-side demonstrations.
- COr 1.1. The community orientation and clinical visit will include visit to the entire chain of healthcare delivery system -Sub centre, PHC, CHC, SDH, DH and Medical College, private hospitals, dispensaries and clinics.
- COr 1.2. The student will also be briefed regarding governance at village level including interaction and group discussion with village panchayat and front line health workers. Clinical visit to their respective professional department within the hospital

