Course Name: Human Anatomy (HA)) **Year: BPT 1**

Course Code: BPT101

Prerequisite: Students should possess a basic understanding of general science and biology, including fundamental concepts of human body structure and function, to facilitate the study of human anatomy.

Rationale: This course provides comprehensive knowledge of the gross anatomy, embryology, neuroanatomy, musculoskeletal system, internal organs, and endocrine glands, enabling physiotherapy students to understand normal human structure, movement, and function as a foundation for clinical assessment, diagnosis, and therapeutic intervention.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective
1	To enable students to understand and accurately describe common anatomical terms used in clinical and academic settings.
2	To provide students with knowledge of the basic embryological development of human structures and systems.
3	To discuss the classifications, general features, structure, and functions of bones, including mechanisms of displacement and common fracture sites.
4	To enable students to identify skeletal muscles, detailing their origin, insertion, nerve supply, actions, and anatomical relationships.
5	To provide a clear understanding of major muscle groups, their functions, nerve supply, and the clinical consequences of nerve injury.
6	To study joints of the human body, their movement patterns, and the muscles responsible for each type of movement.
7	To identify anatomical region borders, including fascia, ligaments, tendons, and cartilage structures relevant to clinical practice.
8	To recognize key anatomical structures and describe the topographic anatomy of the abdomen, pelvis, perineum, thorax, and extremities.
9	To describe the anatomy of organ system components (thorax, abdomen, pelvis, and perineum) based on anatomical regions.
10	To provide an overview of the nervous system, including cerebrum, brainstem, cerebellum, spinal cord, peripheral nerves, and sensory, motor, and autonomic pathways.
11	To enable students to identify clinically relevant injuries, lesions, and anatomical malformations in the musculoskeletal and nervous systems.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs./Week	Tutorial Hrs./Week	Lab Hrs./Week	Seminar Hrs./Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
5	-	3	-	16	20	-	20	80	80	200

T - Theory, **P**– Practical

Course Content:

Sr. No	Unit		Sub - unit	Content	Weightage	Teaching Hours (T)	Teaching Hours (P)	Total Teaching hours	CO
1	Unit 1 - General Anatomy	General	1.1	Define Scope of Anatomy	1	2	0	2	CO1
2			1.2	Discuss the Anatomical Position and anatomical Terminology common anatomical terminologies (Groove, tuberosity, trochanters etc.)	2	3	2	5	CO1
3			1.3	Identify Anatomical positions of body, axes, and planes	2	3	3	6	CO1
4		Bone	1.4	Discuss Composition, Functions, Classification based on Morphology	3	5	3	8	CO3
5			1.5	Describe Development and Structure; Formation / Development of Bones esp. Long Bones; Parts of Long Bones	3	5	4	9	CO2, CO3
6			1.6	Discuss the Blood Supply of Bones	2	4	2	6	CO3
7		Cartilage	1.7	Describe Types and Features of cartilage	2	4	2	6	CO3
8		Joints	1.8	Define and state types of joints	2	4	2	6	CO6
9			1.9	Discuss the features of fibrous, Cartilaginous & Synovial joints, sub-types of synovial joints	2	4	3	7	CO6
10			1.10	Explain the movements of joints, factors permitting and limiting these movement	2	4	3	7	CO6
11			1.11	Discuss blood supply of joints; applied aspects	2	4	2	6	CO6
12		Muscles	1.12	Discuss Comparative Feature of Skeletal, Smooth and Cardiac Muscles, parts & structure of Skeletal Muscle including fascicular architecture	3	5	4	9	CO4
13			1.13	Describe Blood supply and nerve supply of Skeletal Muscle; Motor Unit	3	5	4	9	CO4
14			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	2	4	4	8	CO4, CO5
15		Connective Tissue	1.15	Explain Composition i.e. Cellular & Non-Cellular components	1	2	1	3	CO4
16			1.16	Types and functions of connective tissue	2	4	2	6	CO4
17			1.17	Types and functions of Ligaments	2	2	1	3	CO6

18			1.18	Applied Aspects	1	2	1	3	CO6, CO11
19		**General Embryology**	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)	2	4	2	6	CO2
20			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	3	6	3	9	CO2, CO3
21		**Integumentary System**	1.21	Discuss the Structure of skin and its appendages	2	4	2	6	CO4
22	**Unit 2: Upper Extremity**	**Musculo-skeletal Anatomy of Upper Extremity**	2.1	Identify Osteology: Clavicles, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, and Phalanges	3	6	3	9	CO3, CO7
23			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	3	6	5	11	CO4, CO7, CO8
24			2.3	Explain Shoulder girdle, shoulder joint, elbow joints, radio ulnar joint, wrist joint and joints of the hand	3	6	3	9	CO6, CO7
25			2.4	Discuss Arches of hand, skin of the palm and dorsum of hand	2	4	2	6	CO7
26	**Unit 3 - Thorax**	**Cardio-vascular system**	3.1	Describe Mediastinum: Divisions and contents Pericardium	2	2	2	4	CO9
27			3.2	Describe Thoracic Wall: position, space and parts of the heart; conducting System	2	4	2	6	CO9
28			3.3	Describe blood Supply and nerve supply of the heart; names of the blood vessels and their distribution in the body – region wise	2	4	2	6	CO9
29		**Respiratory System**	3.4	Outline the respiratory passages, Pleura and lungs: position, parts, relations, blood supply and nerve supply; Lungs – emphasize on bronchopulmonary segments	3	4	3	7	CO9
30			3.5	Describe Diaphragm: Origin, insertion, nerve supply and action, openings in the diaphragm	2	4	2	6	CO6, CO9

31			3.6	Describe Intercostal muscles and Accessory muscles of respiration: Origin, insertion, nerve supply and action	2	4	2	6	CO4, CO6
32	**Unit 4 - Lower Extremity**	**Musculo-skeletal Anatomy of Lower Extremity**	4.1	Identify Osteology: Hip bone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges	3	6	3	9	CO3, CO7
33			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	3	6	5	11	CO4, CO7, CO8
34			4.3	Discuss Joints of the lower limb: Hip Joint, Knee joint, Ankle and joint, joints of the foot	2	4	3	7	CO6, CO7
35	**Unit 5**	**Musculo skeletal anatomy of trunk & pelvis**	5.1	Identify Osteology: Cervical, thoracic, lumbar, sacral and coccygeal vertebrae and ribs	2	2	3	5	CO3, CO7
36			5.2	Discuss Soft tissue: Pre and Para vertebral muscles, intercostal muscles, anterior abdominal wall muscles, Inter-vertebral disc	2	4	3	7	CO4, CO7
37			5.3	Describe Pelvic girdle and muscles of the pelvic floor	2	4	2	6	CO4, CO7
38	**Unit 6**	**Abdomen**	6.1	Describe Peritoneum: Parietal peritoneum, visceral peritoneum, folds of peritoneum, functions of peritoneum	2	4	2	6	CO9
39			6.2	Describe large blood vessels of the gut	2	2	2	4	CO9
40			6.3	Identify Location, size, space, features, blood supply, nerve supply and functions of the following: stomach, liver, spleen, pancreas, kidney, urinary bladder, intestines, and gall bladder	2	4	4	8	CO9
41			6.4	Describe Pelvis: Position, space, size, features, blood supply and nerve supply of the male and female reproductive system	2	4	2	6	CO9

42	**Unit 7**	**Endocrine Glands**	7.1	Describe Position, space, 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	2	2	2	4	CO10
43	**Unit 8**	**Musculo skeletal anatomy of head and neck**	8.1	Identify Osteology: Mandible and bones of the skull	2	2	2	4	CO3, CO7
44			8.2	Identify Soft parts: Muscles of the face and neck and their nerve and blood supply-extra ocular muscles, triangles of the neck	2	4	4	8	CO4, CO7
45	**Unit 9**	**Neuro anatomy**	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)	4	8	7	15	CO10 , CO11
TOTAL					**100**	**180**	**120**	**300**	-

Course Outcome	
At the end of the course, the learner should be able to,	
CO1	Describe common anatomical terms.
CO2	Describe the basic embryological development of structures.
CO3	Discuss the classifications of bones, their general features, structure, functions and the mechanism of displacement and common sites of fractures.
CO4	Identify the skeletal muscles, their origin, insertion, nerve supply, actions, and main relations.
CO5	Describe Muscle Groups, their actions, nerve supply and effects of nerve injury.

CO6	Discuss the joints of the body, their movements, and the muscles responsible for the movements.
CO7	Identify the borders of the named anatomical regions along with their associated fascia, ligaments, tendons, or cartilages.
CO8	Recognize anatomical structures and describe the topographic anatomy of the regions of abdomen, pelvis, perineum, thorax, and extremities.
CO9	Describe the anatomy of the components of organ systems of the body based on the anatomical region. (Thorax, abdomen, pelvis, and perineum).
CO10	Describe the components nervous system, including the cerebrum, brainstem, cerebellum, spinal cord, peripheral nerves, sensory motor, and autonomic nervous system.
CO11	Identify clinically relevant injuries, lesions and anatomical malformations including musculoskeletal and nervous system.

Course Name: Human Physiology (HP) **Year: BPT 1**

Course Code: BPT102

Prerequisite: Students should possess a basic understanding of biology, chemistry, and human body systems acquired at the higher secondary level to comprehend physiological mechanisms and their relevance to health and disease.

Rationale: This course provides a comprehensive understanding of the normal physiological functions of cells, blood, cardiovascular, respiratory, digestive, renal, endocrine, reproductive, neuromuscular, and nervous systems, along with exercise physiology, enabling physiotherapy students to correlate body functions with movement, exercise, clinical assessment, and rehabilitation interventions.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective
1	To enable students to understand and accurately use fundamental physiological terminology.
2	To develop knowledge of cellular and tissue organization and their physiological roles in the human body.
3	To explain the processes that maintain internal stability in the human body under normal and stress conditions.
4	To understand membrane structure, transport mechanisms, and their contribution to excitability and cellular function.
5	To describe the mechanisms of muscle contraction and the physiological principles underlying movement.
6	To enable students to understand integrated system functions and their regulation in health.
7	To provide knowledge of the physiological processes of digestive, excretory, and reproductive systems.
8	To develop practical skills in measuring physiological parameters accurately and interpreting the results.
9	To identify and analyse deviations in physiological systems relevant to physiotherapy assessment and intervention.
10	To understand how different physiological systems adapt acutely during physical activity.
11	To explain long-term adaptations of body systems to regular exercise and their implications for rehabilitation and performance.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs./Week	Tutorial Hrs./Week	Lab Hrs./Week	Seminar Hrs./Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
5	-	3	-	16	20	-	20	80	80	200

T - Theory, **P**– Practical

Course Content:

Sr. No	Unit	Sub-unit	Content	Weightage	Teaching Hours (T)	Teaching Hours (P)	Total Teaching hours	CO
1	**Unit 1 - General Physiology**	1.1	Discuss Cell: Morphology. Organelles: their structure and functions And Transport Mechanisms across the cell membrane	1	3	0	3	CO2, CO4
2		1.2	Discuss Body fluids: Distribution, composition	1	3	0	3	CO2, CO3
3	**Unit 2 - Blood**	2.1	Explain Composition and functions of blood and Plasma	2	4	2	6	CO2, CO6
4		2.2	Describe RBC: count and its variations. Erythropoiesis- stages, factors regulating. Reticulo-endothelial system (in brief)	2	4	2	6	CO2, CO6
5		2.3	Describe Haemoglobin – structure, function and derivatives Anaemia (in detail), types of Jaundice. Blood indices, PCV, ESR	2	4	2	6	CO6, CO9
6		2.4	Discuss WBC. Morphology, functions, count, its variation of each. Immunity	2	4	2	6	CO6, CO9
7		2.5	Describe Platelets: Morphology, functions, count, its variations	1	2	1	3	CO6
8		2.6	Discuss Haemostatic mechanisms: Blood coagulation– factors, mechanisms. Their disorders. Anticoagulants	2	4	2	6	CO6, CO9
9		2.7	Describe Blood Groups	1	2	1	3	CO6
10		2.8	Describe Cross matching. Indications and complications of Blood Transfusion	1	2	1	3	CO6
11		2.9	Discuss Composition, formation, circulation and functions of Lymph	1	2	1	3	CO6
12	**Unit 3 - Cardiovascular System**	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	2	4	2	6	CO6

13		3.2	Explain Conducting system in terms of Components. Impulse conduction Cardiac Cycle: Definition. Phases of cardiac cycle. Pressure and volume curves. Heart sounds – causes, character. ECG: Definition. Different types of leads. Waves and their causes. P-R interval. Heart block	2	4	2	6	CO6
14		3.3	Discuss Normal value. Determinants. Stroke volume and regulation of Cardiac Output: Heart rate and its regulation. Their variations	2	3	3	6	CO6
15		3.4	Describe Definition Normal values and its variations. Determinants. Peripheral resistance of Arterial Blood Pressure Regulation of BP Arterial Pulse	2	3	3	6	CO6
16		3.5	Discuss the causes and features of Shock	1	2	1	3	CO6, CO9
17		3.6	Discuss Regional Circulations such as Coronary, Cerebral and Cutaneous circulation	1	2	1	3	CO6
18		3.7	Discuss cardiovascular changes during exercise	2	4	2	6	CO10
19	**Unit 4 - Respiratory System**	4.1	Discuss the functions of – Pleura, tracheo-bronchial tree, alveolus, respiratory membrane and their nerve supply. Functions of respiratory system. Respiratory muscles	2	4	2	6	CO6
20		4.2	Explain the Mechanics of breathing in terms of Intra pleural and intrapulmonary pressure changes during respiration. Chest expansion	2	3	3	6	CO6
21		4.3	Discuss Spirometry- Lung volumes and capacities. Timed vital capacity and its clinical significance. Maximum ventilation volume. Respiratory minute volume	1	3	0	3	CO6, CO8

22		4.4	Discuss Pulmonary Circulation. Ventilation-perfusion ratio and its importance	1	3	0	3	CO6
23		4.5	Explain Transport of respiratory gases: Diffusion across the respiratory membrane. Oxygen transport – Different forms, oxygen- haemoglobin dissociation curve. Factors affecting it. P50, Haldane and Bohr effect. Carbon dioxide transport: Different forms, chloride shift	2	4	2	6	CO6, CO10
24		4.6	Explain Regulation of Respiration: Neural Regulation. Hering-breuer's reflex. Voluntary control. Chemical Regulation	1	3	0	3	CO6, CO10
25		4.7	Discuss Hypoxia: Effects of hypoxia. Types of hypoxia. Hyperbaric oxygen therapy. Acclimatization Hypercapnia. Asphyxia. Cyanosis – types and features. Dysbarism	1	3	0	3	CO9
26		4.8	Explain Respiratory changes during exercise	1	3	0	3	CO10
27	**Unit 5 - Digestive System**	5.1	Describe the functions of digestive system	1	3	0	3	CO7
28		5.2	Describe Salivary Secretion: Saliva: Composition. Functions. Regulation. Mastication	1	3	0	3	CO7
29		5.3	Discuss the stages and Function of Swallowing	1	3	0	3	CO7
30		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	1	3	0	3	CO7
31		5.5	Describe Pancreatic Secretion: Composition, production, function. Regulation	1	3	0	3	CO7
32		5.6	Discuss the Functions of liver, Gall bladder And Composition, functions of bile	1	4	2	6	CO7

33	**Unit 6 - Renal System**	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	2	4	2	6	CO7
34		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	2	3	0	3	CO7
35		6.3	Explain Tubular Reabsorption: Reabsorption of Na+, glucose, HCO3-, urea and water. Filtered load. Renal tubular transport maximum. Glucose clearance: TmG. Renal threshold for glucose	1	3	3	6	CO7
36		6.4	Discuss the Mechanism of concentrating and diluting the Urine: Counter-current mechanism. Regulation of water excretion. Diuresis. Diuretics	2	3	0	3	CO7
37		6.5	Describe Mechanism of micturition. Cystometrogram. Atonic bladder, automatic bladder	1	3	0	3	CO7
38		6.6	Describe Acid-Base balance	1	3	0	3	CO7
39	**Unit 7 - Reproduction System**	7.1	Discuss the physiology of reproductive organs. Sex determination. Sex differentiation. Disorder	1	3	0	3	CO7
40		7.2	Describe Male Reproductive System: Functions of testes. Pubertal changes in males. Spermatogenesis. Testosterone: action. Regulation of secretion. Semen	1	3	0	3	CO7
41		7.3	Describe Female Reproductive System: Functions of ovaries and uterus. Pubertal changes in females. Oogenesis	1	3	0	3	CO7
42		7.4	Hormones: oestrogen and progesterone-action. Regulation of secretion	1	3	0	3	CO7

43		7.5	Describe Menstrual Cycle: Phases. Ovarian cycle. Uterine cycle. Hormonal basis. Menarche. Menopause	1	3	0	3	CO7
44		7.6	Describe Pregnancy: Pregnancy tests. Physiological changes during pregnancy. Functions of placenta. Lactation. Contraception methods	1	3	0	3	CO7
45	**Unit 8 - Endocrine System**	8.1	Enumerate Major endocrine glands	1	3	0	3	CO6
46		8.2	Describe classification, mechanism of action and Functions of hormones	1	3	0	3	CO6
47		8.3	Describe Pituitary hormones: Secretory cells, action on target cells, and regulation of secretion of each hormone	1	3	0	3	CO6
48		8.4	Describe Thyroid hormone and calcitonin: secretory cells, synthesis, storage, action and regulation of secretion. Disorders: Myxoedema, Cretinism, Grave's disease	1	3	0	3	CO6
49		8.5	Describe Parathyroid hormones: secretory cell, action, regulation of secretion. Disorders: Hypoparathyroidism. Hyperthyroidism. Calcium metabolism and its regulation	1	3	0	3	CO6
50		8.6	Describe Adrenal Medulla: Secretory cells, action, regulation of secretion of adrenaline and noradrenaline. Disorders: Phoechromocytoma	1	4	2	6	CO6
51		8.7	Describe Endocrine Pancreas: Secretory cells, action, regulation secretion of insulin and glucagon. Glucose metabolism and its regulation. Disorder: Diabetes mellitus	2	4	2	6	CO6
52	**Unit 9 - Nerve Muscle Physiology**	9.1	Discuss Resting membrane potential. Action potential – ionic basis and properties	2	4	2	6	CO4, CO5
53		9.2	Describe Structure and functions of neurons. Classification, Properties and impulse	2	2	1	3	CO4, CO5

			transmission of nerve fibres. Nerve injury – degeneration and regeneration					
54		9.3	Describe Neuroglia: Types and functions	1	2	1	3	CO4
55		9.4	Classify Skeletal muscle Structure	1	3	3	6	CO5
56		9.5	Discuss the physiology of neuromuscular transmission	2	2	1	3	CO5
57		9.6	Discuss the applied aspects of neuromuscular disorders	1	4	2	6	CO9
58	**Unit 10 - Nervous System**	10.1	Describe Organisation of CNS – central and peripheral nervous system	2	4	2	6	CO6
59		10.2	Describe Functions of nervous system. Synapse: Functional anatomy, classification, Synaptic transmission. Properties	2	4	2	6	CO6
60		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	2	2	1	3	CO6
61		10.4	Discuss Sensory cortex. Somatic sensations: crude touch, fine touch tactile localization, tactile discrimination, stereo gnosis vibration sense	1	2	1	3	CO6
62		10.5	Describe kinaesthetic sensations. Pain sensation: mechanism of pain. Cutaneous pain – slow and fast pain, hyperalgesia. Deep pain. Visceral pain – referred pain	1	3	3	6	CO6
63		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	2	2	1	3	CO6

64		10.7	Describe Muscle tone – definition, and properties hypotonia, atonia and hypertonia. UMNL and LMNL	1	2	1	3	CO5
65		10.8	Discuss Spinal cord Lesions: Complete transection and Hemi section of the spinal cord	1	2	1	3	CO5
66		10.9	Describe Cerebellum: Functions. Cerebellar ataxia	1	2	1	3	CO6
67		10.1	Describe Posture and Equilibrium: Postural reflexes – spinal, medullary, midbrain and cerebral reflexes	1	2	1	3	CO6
68		10.11	Describe Functions of Thalamus and Hypothalamus: Nuclei. Thalamic syndrome	1	2	1	3	CO6
69		10.12	Describe Reticular Formation and Limbic System: Components and Functions	1	2	1	3	CO6
70		10.13	Describe Structures and functions of Basal Ganglia: Parkinson's disease	1	2	1	3	CO6
71		10.14	Describe Cerebral Cortex: Lobes. Brodmann's areas and their functions. Higher functions of cerebral cortex – learning, memory and speech	1	2	1	3	CO6
72		10.15	Describe Formation, composition, circulation and functions of CSF Lumbar puncture and its significance. Blood brain barrier. Hydrocephalus	1	2	1	3	CO6
73		10.16	Describe Features and actions of parasympathetic and sympathetic nervous system	1	2	1	3	CO6
74	**Unit 11 - Physiology of Exercise**	11.1	Explain the Effects of acute and chronic exercise on Respiratory	1	2	1	3	CO10
75		11.2	Explain the Effects of acute and chronic exercise on Cardio vascular	1	2	1	3	CO10
76		11.3	Explain the Effects of acute and chronic exercise on Musculoskeletal	1	2	1	3	CO10
TOTAL				**100**	**221**	**79**	**300**	**-**

Course Outcome	
At the end of the course, the learner should be able to,	
CO1	Describe the key physiological terms.
CO2	Discuss the structure and functions of cell and tissue.
CO3	Discuss the mechanism of homeostasis.
CO4	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)
CO5	Explain the physiology of skeletal muscle contraction.
CO6	Explain the functions of cardio-vascular, respiratory, musculoskeletal and nervous systems including regulatory mechanism.
CO7	Describe the functions of digestive, renal and reproductive systems.
CO8	Demonstrate competencies in performing common physiological and anthropological measurements.
CO9	Discuss the common physiological deviations of cardio-vascular, respiratory, musculoskeletal and nervous systems related to physiotherapy practice.
CO10	Explain normal physiological changes of various systems during exercise.
CO11	Discuss the physiological adaptions to exercise.

Course Name: Biochemistry **Year: BPT 1**

Course Code: BPT103

Prerequisite: Students should have a basic understanding of biology, chemistry, human anatomy, and physiology to comprehend biochemical processes and their relevance to health, disease, and physiotherapy practice.

Rationale: This course provides the fundamental biochemical knowledge required to understand normal human metabolism, nutrition, enzyme function, molecular biology, and clinical biochemical alterations that form the scientific basis for physiotherapy assessment and patient management.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective
1	To provide knowledge of the structure, composition, and functions of cells as the basic units of life and their significance in human physiology.
2	To develop an understanding of the structure and functional properties of the cell membrane and its role in cellular processes.
3	To familiarize students with the biochemical pathways involved in the metabolism of carbohydrates, lipids, proteins, and amino acids and their importance in maintaining body functions.
4	To provide knowledge of the classification, composition, physiological functions, and utilization of vitamins in health and disease.
5	To develop an understanding of exercise-induced biochemical changes and their application in exercise prescription and physiotherapy practice.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs./Week	Tutorial Hrs./Week	Lab Hrs./Week	Seminar Hrs./Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
2	-	-	-	6	10	-	-	40	-	50

T - Theory, **P**– Practical

Course Content:

Sr. No	Unit	Sub-unit	Content	Weightage	Teaching hours	CO
1	Unit 1	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.	8	7	CO5
2		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 fibres.	14	12	CO3
3		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.	10	9	CO3
4		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.	10	9	CO3
5		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.	12	11	CO5

6	**Unit 2**	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).	9	8	CO1
7		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.	9	8	CO1
8		2.3	Vitamins - 1. Definition, classification according to solubility; 2. Individual vitamins - Sources, Coenzyme forms, functions, RDA, digestion, absorption and transport, deficiency and toxicity.	10	9	CO4
9		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.	9	8	CO4
10		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.	9	9	CO5
TOTAL				**100**	**90**	**-**

Course Outcome

At the end of the course, the learner should be able to,	
CO1	Explain the effect of exercise related biochemical changes and its application to exercise prescription
CO2	Explain the effect of exercise related biochemical changes and its application to exercise prescription
CO3	Explain the effect of exercise related biochemical changes and its application to exercise prescription
CO4	Explain the effect of exercise related biochemical changes and its application to exercise prescription
CO5	Explain the effect of exercise related biochemical changes and its application to exercise prescription

Course Name: Fundamentals of Exercise Modalities **Year: BPT 1**

Course Code: BPT104

PrerequisiteStudents should have prior knowledge of basic human anatomy, physiology, kinesiology, biomechanics, and fundamental concepts of movement and musculoskeletal function to understand and apply exercise therapy principles effectively.

Rationale: This course provides the foundational knowledge and practical skills required for assessment, range of motion measurement, muscle testing, therapeutic exercise prescription, and soft tissue manipulation, enabling physiotherapy students to plan and deliver safe and effective rehabilitation interventions.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective
1	To provide knowledge of the fundamental principles of physics and biomechanics underlying human movement, including force, inertia, and laws of motion.
2	To develop an understanding of anatomical planes, axes, and their application in the analysis of human movement.
3	To familiarize students with the principles, methods, and instruments used for measuring joint range of motion.
4	To develop practical skills in measuring joint movements using conventional and electronic goniometric techniques.
5	To enable students to understand and demonstrate fundamental and derived positions, as well as the muscle actions involved in movement.
6	To provide training in safe and effective patient handling and transfer techniques used in clinical practice.
7	To develop competency in performing basic physiotherapy assessment techniques, including motor, sensory, coordination, and balance evaluation.
8	To equip students with the knowledge and practical skills required for the selection and prescription of basic movement and ambulatory aids.

Teaching and Examination Scheme										
Teaching Scheme					Examination Scheme					Total
Lecture Hrs./Week	Tutorial Hrs./Week	Lab Hrs./Week	Seminar Hrs./Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
3	-	2	-	10	20	-	20	80	80	200

T - Theory, **P**– Practical

Course Content:

Sr. No	Unit	Sub-unit	Content	Weightage	Teaching Hours (T)	Teaching Hours (P)	Total Teaching hours	CO
1	**Unit 1 - Basic Principles**	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	3	5	0	5	CO 1
2		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	2	6	0	6	CO 1
3		1.3	Discuss Muscle work group action of muscles, angle of pull and mechanical efficiency of the muscles	4	4	0	4	CO 1
4	**Unit 2 - Starting and Derived Positions**	2.1	Demonstrate the starting positions, their muscle work, effects and uses and Standing, Kneeling, Sitting, Lying and Hanging	5	7	3	10	CO 2
5		2.2	Demonstrate derived positions. Discuss the muscle work of each derived position	5	7	3	10	CO 2
6		2.3	Demonstrate Different methods of measuring range of motion (ROM)	5	7	3	10	CO 2
7		2.4	Discuss Reliability and validity of goniometry. Functional ROM and normal range of motion of various joint. Technique of Goniometry	5	7	2	9	CO 2
8		2.5	Perform ROM measurement of individual joint's using goniometer	6	4	5	9	CO 2
9	**Unit 3 - Muscle Testing**	3.1	Discuss the Principles & Aims, Indications & Limitations, and Techniques of MMT for group & individual testing	4	7	1	8	CO 3
10		3.2	Demonstrate Manual Muscle testing procedure	5	5	4	9	CO 3
11		3.3	Perform MMT for upper limb, lower limb spine and face muscles	5	5	4	9	CO 3
12	**Unit 4 - Classification**	4.1	Classify therapeutic exercises: Technique, effects, therapeutic use	2	5	0	5	CO 4

13	**of therapeutic Exercise**	4.2	Demonstrate Active Movements	5	4	4	8	CO 4
14		4.3	Discuss active movements in terms of Definition of strength, power & work, endurance, muscle actions, Causes of decreased muscle performance	3	5	0	5	CO 4
15		4.4	Explain the Physiological adaptation to training: Strength & Power, Endurance	3	5	0	5	CO 4
16		4.5	Demonstrate Free exercise: Classification, principles, techniques, indications, contraindications, effects and uses	3	4	4	8	CO 4
17		4.6	Demonstrate Active Assisted Exercise	5	5	4	9	CO 4
18		4.7	Discuss the principles, techniques, indications, contraindications, effects and uses Assisted-Resisted Exercise: principles, techniques, indications, contraindications, effects and uses	5	4	4	8	CO 4
19		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	6	5	5	10	CO 4
20		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	6	4	5	9	CO 4
21	**Unit 5 - Massage Manipulation**	5.1	Classify various types of soft tissue manipulation techniques	3	4	2	6	CO 5
22		5.2	Discuss Physiological effects, therapeutic effects and contraindications of soft tissue manipulation	2	4	1	5	CO 5

23		5.3	Describe effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc.	3	4	1	5	CO 5
24		5.4	Perform effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc.	5	3	5	8	CO 5
TOTAL				**100**	**120**	**60**	**180**	**-**

Course Outcome	
At the end of the course, the learner should be able to,	
CO1	Apply the principles of physics in describing movements (Force, inertia, Laws of motion).
CO2	Explain planes and axis of movements.
CO3	Discuss the methods of measuring joint movements.
CO4	Demonstrate joint movement measurements (Including electronic goniometer).
CO5	Demonstrate fundamental and derived positions and muscle actions.
CO6	Demonstrate transfer techniques.
CO7	Perform basic assessment techniques (Motor, sensory, coordination and balance)
CO8	Demonstrate knowledge and skills in prescribing basic movement aids.

Course Name: Fundamentals of Electro Physical Agents **Year: BPT 1**

Course Code: BPT105

Prerequisite: Students should possess prior knowledge of basic physics, human anatomy, physiology, neurophysiology, and elementary electrical concepts to understand the physical principles and therapeutic applications of electrotherapy modalities.

Rationale: This course provides the scientific foundation and practical competencies required for the safe and effective use of electrotherapeutic and thermos-therapeutic agents, enabling physiotherapy students to assess, select, apply, and monitor physical modalities in patient's rehabilitation.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective
1	To provide knowledge of the fundamental principles of physics and electricity relevant to the generation, transmission, and application of electrical energy in physiotherapy.
2	To develop an understanding of the biophysical principles, physiological effects, therapeutic applications, indications, and contraindications of various electrical stimulation agents used in physiotherapy.
3	To enable students to acquire practical skills in patient preparation, equipment handling, parameter selection, and safe application of electrical stimulation modalities.
4	To develop an understanding of the physiology and pathophysiology of pain and its relevance in clinical practice.
5	To familiarize students with various theories and mechanisms of pain and facilitate their application in physiotherapy assessment and clinical decision-making.
6	To provide knowledge and practical competencies in the operation, maintenance, care, safety precautions, therapeutic applications, indications, and contraindications of electrotherapeutic equipment and modalities.

Teaching and Examination Scheme										
Teaching Scheme					Examination Scheme					Total
Lecture Hrs./Week	Tutorial Hrs./Week	Lab Hrs./Week	Seminar Hrs./Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
3	-	2	-	10	20	-	20	80	80	200

T - Theory, **P**– Practical

Course Content:

Sr. No	Unit	Sub-unit	Content	Weightage	Teaching Hours (T)	Teaching Hours (P)	Total Teaching hours	CO
1	Unit 1	1.1	Physical Principles in Relation to Physiotherapy: 1. Structure & 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 and 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.	14	18	0	18	CO1
2		1.2	Effects of Current Electricity: 1. Chemical effects – ions and electrolytes, ionization, production of EMF by chemical actions. Magnetic effects, molecular theory of magnetism, magnetic fields, electromagnetic induction. 2. Milli ammeter and voltmeter, transformers and choke coil, thermal effects – Joule's 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.	14	18	0	18	CO1
3		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 aid and initial management of electric shock.	7	10	2	12	CO6

4	**Unit 2**	2.1	Low Frequency Currents: Introduction to direct, alternating and modified currents. 1. Iontophoresis – biophysics, principles, therapeutic uses, indications, contraindications, operational skills of equipment and patient preparation. 2. Faradic current – biophysics, principles, therapeutic uses, indications, contraindications, operational skills of equipment and patient preparation. 3. Interrupted direct current – biophysics, principles, therapeutic uses, indications, contraindications, operational skills of equipment and patient preparation. 4. Transcutaneous electrical nerve stimulation (TENS) – types of low frequency, pulse width, frequency and intensity used in TENS, theories of pain relief, principles of clinical application, effects, indications, contraindications, precautions, operational skills and patient preparation.	25	26	18	44	CO2, CO3, CO4, CO5
5	**Unit 3**	3.1	Electrical Reactions and Electro-Diagnostic Tests: 1. Electrical stimuli and normal behaviour of nerve and muscle tissue. Types of lesions and development of reaction of degeneration. 2. Faradic / intermittent direct current test. 3. Strength-duration curve and its application. Chronaxie, rheobase and pulse ratio.	15	18	8	26	CO3
6	**Unit 4**	4.1	Infrared rays – wavelength, frequency, types and sources, generation techniques, physiological and therapeutic effects, indications, contraindications, precautions, operational skills of equipment and patient preparation.	10	14	6	20	CO6
7		4.2	Superficial Heat: Paraffin wax bath, moist heat, electrical heating pads. 1. Mechanism of production. 2. Mode of heat transfer. 3. Physiological and therapeutic effects. 4. Indications, contraindications, precautions, operational skills of equipment and patient preparation.	15	16	26	42	CO6
TOTAL				**100**	**120**	**60**	**180**	**-**

Course Outcome	
At the end of the course, the learner should be able to,	
CO1	Explain fundamental principles of physics related to electricity production, its
CO2	Explain the production, physiological and therapeutic effects Biophysics, principles, therapeutic uses, indications, contraindications electrical stimulation agents
CO3	Demonstrate competencies in operational skills of equipment and patient preparation and techniques of application of electrical stimulation agents
CO4	Discuss the physiology and pathophysiology of pain.
CO5	Discuss theories of pain and its implications to physiotherapy clinical decision making.
CO6	Explain physiological effects, therapeutic uses, indications, contraindications and demonstrate practical/operational skills required Demonstrate competencies in equipment maintenance, care and safety- precautions

Course Name: Psychology & Sociology **Year: BPT 1**

Course Code: BPT106

Prerequisite: Students should have a basic understanding of human behaviour, communication, health sciences, and social interactions to effectively comprehend psychological and sociological factors influencing health, illness, and rehabilitation.

Rationale: This course equips physiotherapy students with knowledge of psychological principles, human development, motivation, personality, stress management, social behaviour, and sociological determinants of health, enabling them to provide holistic, patient-centred care and enhance therapeutic relationships in diverse healthcare settings.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective
1	To provide knowledge of the fundamental principles of psychology and their relationship to human behaviour.
2	To familiarize students with major psychological theories and their implications for health and healthcare.
3	To develop an understanding of the physiology of emotions and their relevance in healthcare practice.
4	To introduce the concepts and theories of motivation and their influence on human behaviour.
5	To provide knowledge of the theories, concepts, development, and assessment of personality.
6	To develop an understanding of intelligence and its assessment methods.
7	To explain the psychological concept of frustration and its impact on behaviour and health.
8	To enable students to apply psychological principles in clinical decision-making and patient management.
9	To familiarize students with sociological concepts related to health, healthcare, illness, and disability.
10	To develop an understanding of social theories and their relevance to health and healthcare systems.
11	To introduce biomedical and biopsychosocial models of health and illness.
12	To explain the concept of social groups and their influence on health, sickness, hospitals, and rehabilitation settings.
13	To develop an understanding of the role of family in personality development, health, nutrition, illness, and psychosomatic disorders.
14	To enhance the ability to analyse social factors contributing to activity limitations and participation restrictions in individuals with disorders.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs./Week	Tutorial Hrs./Week	Lab Hrs./Week	Seminar Hrs./Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
3	-	-	-	8	20	-	-	80	-	100

T - Theory, **P**– Practical

Course Content:

Sr. No	Section	Unit	Sub-unit	Content	Weightage	Teaching hours	CO
1	Section A - Psychology	Unit 1	1.1	Introduction to Psychology 1. Describe Schools: Structuralism, functionalism, behaviourism, 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	7	8	CO1
2		Unit 2	2.1	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	8	10	CO2
3		Unit 3	3.1	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 attention and Factors determining attention.	8	10	CO3

4		Unit 4	4.1	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 Leaning, 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	12	14	CO4, CO6
5		Unit 5	5.1	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. Defence Mechanism. 2. Describe Different types of Anxiety, Tension, Physiological symptoms, causes reactions to stresses, psycho-somatic problems, copying strategies. 3. Discuss the management of stress	8	10	CO7
6		Unit 6	6.1	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 Defence 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.	10	12	CO5

7		Unit 7	7.1	Social psychology 1. Describe Different types of leaders and Different theoretical approaches to leadership. 2. Describe development of attitude and Change of attitude.	7	8	CO8
8		Unit 8	8.1	Clinical psychology 1. Describe Models of training, abnormal behaviour 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. Paediatric, child and geriatric clinical psychology.	10	12	CO8, CO11
9	Section B - Sociology	Unit 9	9.1	Introduction to sociology Meaning- Definition and scope of sociology Its relation to Anthropology, Psychology, Social Psychology. Methods of Sociological investigations- Case study, social survey, questionnaire, Interview and opinion poll methods. Importance of its study with special reference to Health Care Professionals. Social Factors in Health and disease situations: Meaning of social factors Role of social factors in health and illness Socialization: Meaning and nature of socialization. Primary, Secondary and Anticipatory socialization. Agencies of socialization. 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. Family: The family, meaning and definitions. Functions of types of family Changing family patterns 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.	15	18	CO9, CO12, CO13

10		Unit 10	10.1	Community: Rural community: Meaning and features –Health hazards of rurality, health hazards to tribal community. Urban community: Meaning and features- Health hazards of urbanities. Culture and Health: Concept of Health Concept of Culture, culture and Health Culture and Health Disorders Social change: Meaning of social changes. Factors of social changes. Human adaptation and social change Social change and stress. Social change and deviance. Social change and health programme The role of social planning in the improvement of health and rehabilitation. Social Problems of disabled: Consequences of the following social problems in relation to sickness and disability, remedies to prevent these problems. Population explosion Poverty and unemployment Beggary Juvenile delinquency Prostitution Alcoholism Problems of women in employment Geriatric problems and Problems of underprivileged. Social Security: Social security and social legislation in relation to the disabled.	15	18	CO10, CO14
TOTAL					**100**	**120**	**-**

Course Outcome	
At the end of the course, the learner should be able to,	
CO1	Describe the principles of psychology and it relationship to human behaviour.
CO2	Discuss the theories of psychology and its implications to health.
CO3	Discuss physiology of emotions and its applications in health care.
CO4	Explain the theories of motivation.
CO5	Discuss the theories, concepts, development and assessment of personality.
CO6	Explain the concepts of intelligence and its assessment.
CO7	Describe the psychological concepts of frustration.
CO8	Apply the principles of psychology in clinical decision making.
CO9	Discuss the sociological concepts in relations to health, healthcare, and disorders.

CO10	Explain social theories in relations to health and health care.
CO11	Discuss biomedical and biopsychosocial health models.
CO12	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.
CO13	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
CO14	Analyse the social cause for activity limitations and participatory restrictions caused by various disorders.

Course Name: Fundamentals of Healthcare Delivery System in India

Year: BPT 1

Course Code: BPT107

PrerequisiteStudents should have a basic understanding of public health, healthcare services, and the role of healthcare professionals to comprehend the organization and functioning of healthcare delivery systems.

Rationale: This course provides physiotherapy students with knowledge of healthcare delivery systems, national health programs and policies, health promotion, healthcare financing, insurance, and contemporary healthcare reforms, enabling them to effectively contribute to healthcare services and public health initiatives at local, national, and global levels.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective
1	To provide students with an understanding of the structure, organization, and functioning of healthcare delivery systems at primary, secondary, and tertiary levels, including community participation, private healthcare, and international health systems.
2	To familiarize students with the National Health Mission, National Health Policy, national health programmes, and the major challenges affecting healthcare delivery in India.
3	To develop an understanding of the health status of India and the fundamental concepts of health, disease, determinants of health, health promotion, and disease prevention.
4	To orient students to the role of physiotherapy and other healthcare professionals within various healthcare settings and multidisciplinary healthcare teams.
5	To introduce students to contemporary healthcare concepts including corporatization, globalization, healthcare reforms, and the organization of primary and specialty healthcare services.
6	To provide knowledge of healthcare financing, health insurance systems, and their influence on accessibility, quality, and delivery of healthcare services.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs./Week	Tutorial Hrs./Week	Lab Hrs./Week	Seminar Hrs./Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
3	-	-	-	8	20	-	-	80	-	100

T - Theory, **P**– Practical

Course Content:

Sr. No	Unit	Sub-unit	Content	Weightage	Teaching hours	CO
1	Unit 1	1.1	Introduction to healthcare delivery system	5	6	CO1
2		1.2	Healthcare delivery system in India at primary, secondary and tertiary care	7	8	CO1
3		1.3	Community participation in healthcare delivery system	4	5	CO1
4		1.4	Health system in developed countries.	4	5	CO1
5		1.5	Private Sector	4	5	CO1
6		1.6	National Health Mission	7	8	CO2
7		1.7	National Health Policy	5	6	CO2
8		1.8	Issues in Health Care Delivery System in India	7	8	CO2
9	Unit 2	2.1	National Health Programme- Background objectives, action plan, targets, operations, achievements and constraints in various National Heath Programme.	8	10	CO2
10		2.2	Health scenario of India- past, present and future	5	6	CO3
11		2.3	Introduction to the profession of physiotherapy role of physiotherapy in national health issues and the expectations of society from physiotherapists	5	6	CO4
12		2.4	The concepts of health and disease, risk factors, and the role of health promotion and disease prevention	7	8	CO3
13		2.5	Explore the corporatization of health care.	4	5	CO5
14		2.6	Identify the globalisation of health care.	4	5	CO5
15		2.7	Assess the prospects of new health care reform.	4	5	CO5
16		2.8	Understand various types of health services professionals and their training, practice requirements, and practice settings.	5	6	CO4
17		2.9	Differentiate between primary care and specialty care, and identify the causes of the imbalance between primary care and specialty care	5	6	CO5

18		2.10	Study the role of health care financing and its impact on the delivery of health care.	5	6	CO6
19		2.11	Understand the basic concept of insurance and how general insurance terminology applies to health insurance.	5	6	CO6
TOTAL				**100**	**120**	**-**

Course Outcome	
At the end of the course, the learner should be able to,	
CO1	Describe the structure and components of the healthcare delivery system including primary, secondary and tertiary care, community participation, private sector, and health systems in developed countries.
CO2	Explain the National Health Mission, National Health Policy, national health programmes, and the major issues in the healthcare delivery system in India.
CO3	Describe the health scenario of India and explain the concepts of health, disease, risk factors, health promotion, and disease prevention.
CO4	Explain the role of physiotherapy in national health care, various health care professionals, and different practice settings in the healthcare delivery system.
CO5	Describe the concepts of corporatization, globalization, health care reforms, and the differences between primary care and specialty care in healthcare delivery.
CO6	Explain the principles of health care financing, insurance, and the impact of financing systems on the delivery of health services.

Course Name: English, Communication and Soft Skills **Year: BPT 1**

Course Code: BPT108

Prerequisite: Students should possess basic proficiency in English language, interpersonal communication, and professional etiquette to effectively develop communication skills required in healthcare and physiotherapy practice.

Rationale: This course enhances students' verbal, non-verbal, written, and therapeutic communication skills, enabling them to interact effectively with patients, caregivers, colleagues, and healthcare teams while facilitating patient education, professional documentation, and quality healthcare delivery.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective
1	To develop proficiency in English language communication by enhancing students' grammar, vocabulary, speaking, listening, reading, and writing skills, enabling them to express ideas effectively and confidently in academic, professional, and social contexts.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme (NUES)					
					Internal Marks			External Marks		Total
Lecture Hrs./Week	Tutorial Hrs./Week	Lab Hrs./Week	Seminar Hrs./Week	Credit	T	CE	P	T	P	
2	-	-	-	4	-	-	-	-	-	-

T - Theory, **P**– Practical

Course Content:

Sr. No	Unit	Sub-unit	Content	Teaching hours	CO
1	Unit 1	1.1	Basic Language Skills: Grammar and Usage.	8	CO1
2		1.2	Business Communication Skills. With focus on speaking - Conversations, discussions, dialogues, short presentations, pronunciation.	10	
3		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.	10	
4		1.4	Basic concepts & principles of good communication	6	
5	Unit 2	2.1	Special characteristics of health communication	4	
6		2.2	Types & process of communication – verbal, non-verbal and written communication. Upward, downward and lateral communication.	6	
7		2.3	Therapeutic communication: empathy versus sympathy.	4	
8		2.4	Communication methods for teaching and learning.	4	
9		2.5	Communication methods for patient education.	4	
10		2.6	Barriers of communication & how to overcome.	4	
TOTAL				**60**	**-**

Course Outcome	
At the end of the course, the learner should be able to,	
CO1	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 Name: Information Technology **Year: BPT 1**

Course Code: BPT109

Prerequisite: Students should possess basic digital literacy and familiarity with common technological devices to effectively understand computer systems and their applications in healthcare settings.

Rationale: This course provides foundational knowledge of computer systems, operating systems, office productivity tools, networking, and internet applications, enabling physiotherapy students to efficiently manage clinical documentation, data handling, presentations, communication, and technology-based healthcare practices.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective
1	To introduce students to the basic components, functions, and operations of a computer system and develop fundamental computer literacy skills.
2	To provide hands-on experience in the use of computer systems, including operating systems, software applications, and data management tools for academic and professional purposes.
3	To develop the ability to create, edit, and manage documents, presentations, and data using commonly used productivity software.
4	To familiarize students with internet-based technologies and enable them to utilize online resources effectively for personal, educational, and professional activities.
5	To enhance understanding of the applications and significance of digital technologies in healthcare and health sciences, including communication, information management, and evidence-based practice.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme (NUES)					Total
Lecture Hrs./Week	Tutorial Hrs./Week	Lab Hrs./Week	Seminar Hrs./Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
2	-	-	-	4	-	-	-	-	-	-

T - Theory, **P**– Practical

Course Content:

Sr. No	Unit	Sub-unit	Content	Teaching hours	CO
1	Unit 1	1.1	Introduction to computer: Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages.	4	CO1
2		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).	5	CO1
3		1.3	Processor and memory: The Central Processing Unit (CPU), main memory.	4	CO1
4		1.4	Storage Devices: Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices.	4	CO1
5		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.).	5	CO2
6		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.	6	CO3
7		1.7	Introduction to Excel: introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs.	6	CO3
8		1.8	Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs/ photos/ Videos.	5	CO3
9		1.9	Introduction of Operating System: introduction, operating system concepts, types of operating system.	4	CO2
10		1.1	Computer networks: introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network.	5	CO4
11		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.	6	CO4
12		1.12	Application of Computers in clinical settings.	6	CO5
TOTAL				**60**	**-**

Course Outcome	
At the end of the course, the learner should be able to,	
CO1	To know the parts of computer
CO2	To have working knowledge of a computing system
CO3	Use computer for word processing and presentation and data management
CO4	Use the internet for personal and professional purpose
CO5	Understand the role of digital technology in the Health sciences

Course Name: Clinical Orientation and Visit **Year: BPT 1**

Course Code: BPT110

Prerequisite: Students should possess a basic understanding of healthcare professions, community health concepts, and professional ethics to effectively engage in community and clinical orientation activities.

Rationale: This course introduces students to the structure and functioning of the healthcare delivery system, community health services, local governance, and clinical practice environments, fostering professional awareness, social responsibility, and an understanding of the physiotherapist's role within multidisciplinary healthcare teams.

Course Objective:

At the end of the course, the learner should be able to,

Sr. No	Course Objective
1	To provide students with an understanding of the structure, organization, and functioning of the healthcare delivery system at various levels and to familiarize them with the roles of different healthcare professionals in patient care.
2	To orient students to community health governance, frontline health services, and clinical healthcare settings, thereby developing awareness of professional responsibilities and the role of physiotherapy in the healthcare delivery system.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme (NUES)					
Lecture Hrs./Week	Tutorial Hrs./Week	Lab Hrs./Week	Seminar Hrs./Week	Credit	Internal Marks			External Marks		Total
					T	CE	P	T	P	
-	-	4	-	5	-	-	-	-	-	-

T - Theory, **P**– Practical

Course Content:

Sr. No	Unit	Sub-unit	Content	Teaching hours	CO
1	**Unit 1**	**1**	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.	**30**	**CO1**
2		**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.	**90**	**CO1, CO2**
3		**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	**30**	**CO2**
Total				**150**	**-**

Course Outcome	
At the end of the course, the learner should be able to,	
CO1	Describe the organization, functions, and services of various levels of the healthcare delivery system and identify the roles of healthcare professionals in patient care.
CO2	Demonstrate awareness of community health governance, frontline health services, and the role of physiotherapy through community orientation and clinical exposure visits.