

UNIVERSITY OF ENGINEERING AND MANAGEMENT, JAIPUR



DETAILED SYLLABUS FOR BACHELOR OF PHYSIOTHERAPY (BPT)

BATCH 2025-2027

SCHOOL OF PHYSIOTHERAPY

UNIVERSITY OF ENGINEERING AND MANAGEMENT, JAIPUR

4.12. SCHEME OF STUDY: BACHELOR OF PHYSIOTHERAPY (B. P. T.)

4.12.1. First Year B. P. T. Examination [Annual Pattern]

Table 4.9: First Year B.P.T. Examination Scheme

S. No	Subject	Internal Assessment Marks		University Examination Marks			Total Marks	Theory Hours	Practical Hours	Total	Credits Theory	Credits Practical	Credits Total
		T	P	T	V	P							
1.	Human Anatomy	20	20	80	20	60	200	180	120	300	12	4	16
2.	Human Physiology	20	20	80	20	60	200	180	120	300	12	4	16
3.	Biochemistry	10		40			50	90		90	6		6
4.	Fundamentals of Exercise Therapy	20	20	80	20	60	200	120	60	180	8	2	10
5.	Fundamentals of Electrotherapy	20	20	80	20	60	200	120	60	180	8	2	10
6.	Psychology & Sociology	20		80			100	120		120	8		8
7.	Fundamentals of Health Care Delivery System in India	20		80			100	120		120	8		8
8.	English			(NUES)				60		60	4		4
9.	Information Technology			(NUES)				60		60	4		4
10.	Clinical Orientation								150	150		5	5
	Grand Total	130	80	520	80	240	1050	1050	510	1560	70	17	87

B.P.T curriculum

B.P.T 1ST YEAR SYLLABUS COURSE CODE ANA101

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 and short Answers
3. Spotters

S. No.	Topics	Hours	Course Outcome
1	Unit 1	30	
	Define Scope of Anatomy	1	CO1
	Discuss the Anatomical Position and anatomical Terminology common anatomical terminologies (Groove, tuberosity, trochanters etc.)	1	CO3
	Identify Anatomical positions of body, axes, and planes	1	CO2
	Bones	1	CO4
	Discuss Composition, Functions, Classification based on Morphology	1	CO5
	Describe Development and Structure; Formation / Development of Bones esp. Long Bones; Parts of Long Bones	1	CO1
	Discuss the Blood Supply of Bones	1	CO6
	Cartilage	1	
	Describe Types and Features of cartilage	1	CO2
	Joints	1	
	Define and state types of joints.	1	CO1
	Discuss the features of fibrous, Cartilaginous & Synovial joints, sub-types of synovial joints	1	CO7
	Explain the movements of joints, factors permitting and limiting these movement	1	CO11
	Discuss blood supply of joints; applied aspects	1	
	Muscles:	1	CO1
	Discuss Comparative Feature of Skeletal, Smooth and Cardiac Muscles, parts & structure of Skeletal Muscle including fascicular architecture	2	
	Describe Blood supply and nerve supply of Skeletal Muscle;	1	CO5

	Motor Unit		
	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	CO2
	Connective Tissue:	1	CO8
	Explain Composition i.e. Cellular & Non-Cellular components	1	CO1
	Types and functions of connective tissue	1	CO10
	Types and functions of Ligaments	1	CO2
	Applied Aspects	1	CO1
	General Embryology:	1	CO3
	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).	1	CO2
	Discuss Development of bones, axial and appendicular skeleton and muscles, Neural tube, brain vessels and spinal cord, Development of brain and brain stem structures	1	CO4
	Integumentary System:	1	CO8
	Discuss the Structure of skin and its appendages	1	CO3
	Unit:2 Upper Extremity	30	
	Musculo Skeletal Anatomy of Upper Extremity		CO11
	Identify Osteology: Clavicles, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, and Phalanges.	10	CO9
	Identify Soft parts: Breast, pectoral region, axilla, front of arm, back of arm, cubital fossa, front of fore arm, back of forearm, palm, dorsum of hand, muscles, nerves, blood vessels and lymphatic drainage of upper extremity.	5	CO2
	Explain Shoulder girdle, shoulder joint, elbow joints, radio	10	CO7

	ulnar joint, wrist joint and joints of the hand.		
	Discuss Arches of hand, skin of the palm and dorsum of hand.	5	CO11
	Unit 3: Thorax:	30	
	Cardio-vascular system		
	Describe Mediastinum: Divisions and contents Pericardium	3	CO4
	Describe Thoracic Wall: position, shape and parts of the heart; conducting System	3	CO10
	Describe blood Supply and nerve supply of the heart; names of the blood vessels and their distribution in the body – region wise.	3	CO1
	Respiratory system		
	Outline the respiratory passages, Pleura and lungs: position, parts, relations, blood supply and nerve supply; Lungs – emphasize on bronchopulmonary segments.	3	CO3
	Describe Diaphragm: Origin, insertion, nerve supply and action, openings in the diaphragm.	3	CO5
	Describe Intercostal muscles and Accessory muscles of respiration: Origin, insertion, nerve supply and action.	3	CO6
	Musculo Skeletal Anatomy of Lower Extremity		
	Identify Osteology: Hip bone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges.	5	CO11
	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	CO2
	Discuss Joints of the lower limb: Hip Joint, Knee joint, Ankle	3	CO2

	and joint, joints of the foot.		
	Unit 4: Musculoskeletal anatomy of trunk & pelvis:	30	
	Identify Osteology: Cervical, thoracic, lumbar, sacral and coccygeal vertebrae and ribs.	10	CO3
	Discuss Soft tissue: Pre and Para vertebral muscles, intercostal muscles, anterior abdominal wall muscles, Inter-vertebral disc.	10	
	Describe Pelvic girdle and muscles of the pelvic floor.	10	CO1
	Unit 5: Abdomen:	30	
	Describe Peritoneum: Parietal peritoneum, visceral peritoneum, folds of peritoneum, functions of peritoneum.	5	CO9
	Describe large blood vessels of the gut.	5	CO10
	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.	5	CO1
	Describe Pelvis: Position, shape, size, features, blood supply and nerve supply of the male and female reproductive system.	5	CO5
	Endocrine glands		
	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.	10	CO1
	Unit 6: Musculo Skeletal Anatomy of Head and Neck	30	
	Identify Osteology: Mandible and bones of the skull.	5	CO7
	Identify Soft parts: Muscles of the face and neck and their nerve and blood supply-extra ocular muscles, triangles of the neck.	5	CO1
	Discuss Organization of Central Nervous system - Spinal	20	CO4

	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)		
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SUBJECT: Human Anatomy

COURSE CODE: ANA191

CREDITS: 4

S. No.	Practical Component	Course Outcomes	Hours
1	Identify the parts of bones (Upper limb, lower limb, and spine)	CO1, CO2	20
2	Identify the muscles of extremities, trunk, and face on a dissected human body / 3D models	CO2, CO3, CO4	20
3	Identify the joints of extremities, trunk, and face on a dissected human body / 3D models	CO2, CO3	15
4	Identify the course and relationships of major peripheral nerves including plexus formation	CO7, CO10	15
5	Identify the surface markings of joints, fascia, ligaments and muscles of extremities, trunk and face	CO3, CO4, CO11	15
6	Identify the gross structure of heart, lungs, brain, and spinal cord on a dissected specimen	CO5, CO6, CO10	20
7	Study and interpretation using Human Body / 3D models	CO2, CO3, CO11	15

Essential Readings:

Recommended Text Books for HA

1. Snell RS. *Clinical Anatomy*: an illustrated review with questions and explanations. Lippincott Williams & Wilkins; 2004.
2. Inderbir Singh, *Textbook 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

External Courses:

1. NPTEL Medical Course Anatomy
<https://dth.ac.in/medical/course.php>
2. Anatomy Specialization, University of Michigan, Course Era
<https://www.coursera.org/specializations/anatomy>

SUBJECT: HUMAN PHYSIOLOGY-I

SUBJECT CODE: PHY102

CREDITS: 3

Course Objectives:

The following goals are designed to ensure students comprehensively understand physiology.

These goals serve as the cohesive framework for all physiology topics, emphasizing the development of precise terminology for effective communication. Students will identify anatomical structures and elucidate the physiological functions of body systems. They will integrate concepts to relate physiological knowledge to practical scenarios, encompassing Healthy lifestyle choices and imbalances in homeostasis. Furthermore, students will demonstrate proficiency in laboratory techniques for assessing the physiological functions of each organ system and interpret graphs depicting anatomical and physiological data.

Course Outcomes (CO):

After taking this course, a student will:

CO1: Acquire thorough knowledge of general physiology about cells, blood, nerves, and muscles.

CO2: Demonstrate understanding of the theoretical and practical aspects of the nervous system, including its classification and the physiology of voluntary movement.

CO3: Gain proficiency in understanding the excretory system and its functions through applied physiology.

CO4: Comprehend the physiological foundations of the endocrine system and its clinical implications.

CO5: Understand the physiology of reproductive systems and the physiological changes occurring during pregnancy.

CO6: Illustrate human respiratory system physiology through diagrams and explanations.

CO7: Attain theoretical and practical knowledge of cardiovascular and gastrointestinal systems, applying this knowledge in clinical contexts.

Unit No	CO1	CO2	CO3	CO4	CO5	CO6	CO7
1	✓						
2	✓						
3							✓
4						✓	
5	✓	✓					
6		✓		✓			

S. No	Topics	Hours	Course Outcome
1.	General Physiology	3	
	Cell: Morphology. Organelles: their structure and functions.	2	CO1
	Transport across the cell, diffusion, osmosis.	1	CO1
2.	Blood	5	
	Composition and function of blood, lymph and plasma, and Blood cells:	1	CO1
	structure, types, functions, counts and variation of RBC, WBC, Platelet, Hemoglobin,	1	CO1
	Erythropoiesis, Coagulation of blood (clotting factor), blood groups, immunity&, anticoagulants. Cross-matching	2	CO1
	Indications and complications of Blood Transfusion, anemia, jaundice, hemophilia.	1	CO1
3.	Cardiovascular system:	9	
	Physiological anatomy, structure, properties & nerve supply of heart, cardiac muscles, and blood vessels	2	CO7
	Action potential & pacemaker potential. Conducting system in terms of Components. Impulse conduction Cardiac Cycle, ECG. Cardio-vascular reflexes.	4	CO7

	Stroke volume and regulation of Cardiac Output: Normal values, determinants, regulation & its variations of BP.	3	CO7
4.	Respiratory System:	7	
	Functions of – Pleura, trachea-bronchial tree, alveolus, respiratory membrane, and their nerve supply, Respiratory muscles mechanisms.	3	CO6
	Spirometry, Transport of respiratory gases: Diffusion across the respiratory membrane. Oxygen transport – Different forms, oxygen hemoglobin, dissociation curve (Bohr effect, Haldane effect).	2	CO6
	Regulation of Respiration: Neural Regulation. Hering-Breuer reflex. Voluntary control. Hypoxia: Hyperbaric oxygen therapy. Acclimatization Hypercapnia. Asphyxia. Cyanosis, Dysbarism. Respiratory changes during exercise it's important.	2	CO6
5.	Nerve Muscle Physiology	14 Hours	
	Resting Membrane Potential and Action Potential: description, membrane potential and its importance.	1	CO2
	Analysis of action potential: ionic basis, properties, and propagation.	1	CO2
	Structure and Functions of Neurons: Detailed examination of neuron structure and functional components.	2	CO2
	Classification of neurons by structure and function.	1	CO2
	Properties of nerve fibers and mechanisms of impulse transmission.	1	CO2
	Overview of nerve injury, including degeneration and regeneration processes.	1	CO2
	Neuroglia: Types and Functions:	1	CO2

	Classification and roles of neuroglia (glial cells) in the nervous system.	1	CO2
	Functions of neuroglial cells in supporting and protecting neurons.	1	CO2
	Skeletal Muscle Structure: Classification and structural components of skeletal muscle fibers.	1	CO2
	Physiology of Neuromuscular Transmission: Mechanisms governing neuromuscular transmission.	1	CO2
	Role of neurotransmitters in muscle contraction and relaxation.	1	CO2
	Applied Aspects of Neuromuscular Disorders Clinical implications and management strategies for neuromuscular disorders.		CO2
	Diagnostic methods and therapeutic approaches in treating neuromuscular Diseases		CO2
6.	Nervous System	27 Hrs	
	Overview of central and peripheral nervous system, Functions of Nervous System.	1	CO2
	Functional anatomy, Classification & properties of synapse. Synaptic transmission.	1	CO2
	Sensory Mechanism: Functions and classification of sensory receptors.	1	CO3
	Sensory pathways: posterior column tracts, lateral spinothalamic tract, anterior spinothalamic tract, and trigeminal pathway.	1	CO2
	Sensory Cortex Sensations: Types of sensations: crude touch, fine touch, tactile discrimination, vibration sense. Mechanism of pain sensation: cutaneous pain (slow and fast pain), hyperalgesia, deep pain, visceral pain (referred pain).	1	CO3

Motor Cortex and Motor Pathways Overview of motor pathways: pyramidal tracts, extrapyramidal tracts.	1	CO3
Muscle Tone: Definition and properties of muscle tone: hypotonia, atonia, hypertonia.	1	CO2
Upper motor neuron lesions (UMNL) and lower motor neuron lesions (LMNL).	1	CO2
Spinal Cord Lesions: Effects and characteristics of complete transection and hemisection of the spinal cord.	1	CO3
Cerebellum and Posture, cerebellar ataxia.	1	CO2
Postural reflexes: spinal, medullary, midbrain, and cerebral reflexes.	1	CO2
Thalamus, Hypothalamus, Reticular Formation, and Limbic System.	1	CO3
Structure, Functions and nuclei of the thalamus, hypothalamus, Basal Ganglia and Cerebral Cortex.	1	CO2
Cerebral cortex lobes, Brodmann's areas, and higher functions like learning, memory, and speech.	1	CO2
Cerebrospinal Fluid (CSF) and Blood Brain Barrier: Formation, composition, characteristics, importance circulation, & functions of CSF.	1	CO2
Significance of lumbar puncture.	1	CO2
Autonomic Nervous System: Features and actions of the parasympathetic and sympathetic nervous systems.	1	CO2

SUBJECT CODE: PHY192 I CREDITS: 1

S.No.	Topics	Hours	Course Outcome
1.	Collection of Blood.	1	CO1
2.	Study of Hemocytometer. Hemoglobinometry.	1	CO1
	white blood cell count, red blood count, Leishman's staining	1	CO1
3.	Determination of Blood Group.	2	CO1
4.	Bleeding time and Clotting time (BTCT).	1	CO1
5.	Spirometry: Lung Volume and Capacity.	1	CO6
6.	Measurement of blood pressure.	1	CO6
7.	Determine muscle tone.	1	CO2
8.	Cranial nerves	1	CO2

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

1. Textbook of Medical Physiology –Guyton Arthur (Mosby.)
2. Best & Taylor's Physiological Basis of Medical Practice
3. West's Respiratory Physiology.
4. Nunn and Lumb's Applied Respiratory Physiology

B.P.T 1ST YEAR SYLLABUS COURSE CODE BC103

Course Title: B.P.T. Biochemistry (HA): Lecture (L)

BC 1.0. Subject Description and instruction to teacher

Credit Hour: Theory (3)

Contact Hour: 90 Hrs

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. **Identify** the structure, composition, and functional components of a cell.
2. **Analyse** the architecture and role of the cell membrane in physiological processes
3. **Demonstrate** an understanding of the metabolic pathways of carbohydrates, lipids, proteins, and amino acids.
4. **Classify** various types of vitamins based on composition and physiological roles.
5. **Apply** knowledge of biochemical responses to exercise in formulating appropriate exercise prescriptions.

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 Meth

Long term and short Term Answers

UNIT	Topics	Hours	Course Outcome
1.	Acid-Base Balance and Homeostatic Mechanisms	5 Hours	CO2
	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.	5	CO2
2.	Overview Carbohydrate Chemistry	5 Hours	CO3
	Definition, general classification with examples, Glycosides bond	1	CO3
	Structures, composition, sources, properties and functions of Monosaccharides, Disaccharides, Oligosaccharides and Poly- saccharides.	1	CO3
	Glycosaminoglycan (mucopoly saccharides)	1	CO3
	Carbohydrate Metabolism - Introduction, Glycolysis – Aerobic, Anaerobic Citric acid cycle, Substrate level phosphorylation.	1	CO3
	Glycogen metabolism – Glycogenesis, Glyco Geno lysis, Metabolic disorders glycogen, Gluconeogenesis, Cori cycle Hormonal regulation of glucose, Glycosuria, Diabetes mellitus	1	CO3
	Role of carbohydrates in diet: Digestible carbohydrates and dietary fibres.	1	CO3
3.	Lipid Chemistry	10 Hours	CO3
	Definition, general classification Definition, classification, properties and functions of Fatty acids, Triacylglycerol, Phospholipids, Cholesterol Essential fatty acids and their importance	5	CO3

	Lipoproteins: Definition, classification, properties, Sources and function Ketone bodies Role of lipids in diet.	5	
4.	Amino-acid Chemistry	10 Hours	CO3
	Amino acid chemistry: Definition, Classification, Peptide bonds	3	CO3
	Peptides: Definition, biologically important peptides	2	CO3
	Protein chemistry: Definition, Classification, Functions of proteins	1	CO3
	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	4	CO3
1.	Nutrition	10 Hours	CO5
	Introduction, Importance of nutrition Calorific values, Respiratory quotient – Definition, and its significance	2	CO5
	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	2	CO5
	Balanced diet i. Recommended dietary allowances ii. Nutritional disorders.	4	CO5
6.	Enzymes	10 Hours	CO1
	Definition, Active site, Cofactor (Coenzyme, Activator), Proenzyme. Classification with examples, Factors affecting enzyme activity, Enzyme inhibition and significance, Isoenzymes, Diagnostic enzymology (clinical significance	10	CO1

	of enzymes)		
7.	Nucleotide and Nucleic acid Chemistry	10 Hours	CO1
	Nucleotide chemistry: Nucleotide composition, functions of free nucleotides in body.	5	CO1
	Nucleic acid (DNA and RNA) chemistry: Difference between DNA and RNA, the Structure of DNA (Watson and Crick model), Functions of DNA. Structure and functions of tRNA, rRNA, mRNA.	5	
8.	Vitamins	10 Hours	CO4
	Definition, classification according to solubility,	5	CO4
	Individual vitamins - Sources, Coenzyme forms, functions, RDA, digestion, absorption and transport, deficiency and toxicity.	5	CO4
9.	Mineral Metabolism	10 Hours	CO5
	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.	10	CO5
10.	Clinical Biochemistry	10 Hours	CO5
	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	10	CO5

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

B.P.T 1ST YEAR SYLLABUS COURSE CODE EXT104

Course Title: B.P.T. Fundamentals of Exercise Therapy: Lecture (L): Practical (P)

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.

EXT104 Course Outcomes: Fundamentals of Exercise Modalities

1. Apply fundamental principles of physics, including force, inertia, and the laws of motion, to analyse and understand human movement.
2. Demonstrate knowledge of anatomical planes, axes, and body positions, and relate them to joint and muscle movements.
3. Utilize appropriate techniques and instruments, including electronic goniometers, for measuring joint range of motion.
4. Perform fundamental assessments of motor, sensory, coordination, and balance functions in a clinical setting.
5. Execute correct methods of patient handling and transfer techniques in accordance with clinical safety protocols.
6. Recommend and apply suitable basic movement aids based on patient assessment and mobility needs.

1.0.2 Teaching Learning Methods:

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

S. No	Topics	Hours	Course outcome
1.	Fundamental Concepts and Principles of Exercise Therapy	6 Hours	CO1
	Introduction to Exercise Therapy Objectives and therapeutic aims Techniques and methods used in clinical application Patient-centred approach in addressing functional problems Preliminary assessment including measurement of vital parameters	2	CO1
	Mechanical Principles in Exercise Therapy Application of biomechanical concepts such as force, vector composition and resolution, Types of equilibrium: stable, unstable, and neutral Gravitational concepts including line of gravity (LOG) and centre of gravity (COG), Classification and application of levers, Related concepts: speed, velocity, work, energy, power, acceleration, momentum, friction, and inertia	2	CO1
	Muscle Function and Biomechanics Patterns of muscle work and group actions, Influence of angle of pull on muscle performance, Factors contributing to mechanical efficiency of muscular activity.	2	CO1
2.	Postural Positions and Joint Range of Motion Assessment	6 Hours	CO2
	Fundamental Postural Positions Demonstration of basic starting positions: standing, kneeling, sitting, lying, and hanging, Associated muscle activity, physiological effects, and clinical applications of each position	2	CO2
	Derived Positions Demonstration of variations derived from the basic postures, Analysis of muscular engagement and functional significance of each derived form, Standard procedures and techniques in the use of goniometers for joint assessment, Hands-on performance of ROM measurements for individual joints using a goniometer	2	CO2
	Assessment of Joint Range of Motion (ROM) Introduction to various techniques for measuring joint ROM, Evaluation of reliability and validity of goniometric methods, Identification of functional ROM and normative values for major joints	2	CO2

3.	Muscle Testing	10 Hours	CO4
	Foundational Concepts of Manual Muscle Testing (MMT) Principles and objectives of MMT, Clinical indications and limitations of its application, Techniques for assessing both muscle groups and individual muscles	5	CO4
	Demonstration of MMT Procedures Standard protocols for performing manual muscle testing, Positioning, stabilization, and grading criteria	5	CO4

4.	Classification and Application of Therapeutic Exercises	10 Hours	CO5
	Overview and Classification of Therapeutic Exercises Classification based on technique, physiological effects, and therapeutic applications	1	CO5
	Active Movements and Muscle Performance Demonstration of active movements, Key concepts: strength, power, work, endurance, and types of muscle actions, Contributing factors to reduced muscle performance	1	CO5
	Physiological Adaptations to Training Adaptations related to strength, power, and endurance with therapeutic exercise interventions	1	CO5
	Free Exercises Demonstration of classification, guiding principles, techniques, indications, contraindications, and therapeutic benefits	1	CO5
	Active Assisted Exercises Practical demonstration of techniques and clinical application	1	CO5
	Assisted-Resisted Exercises Principles, techniques, indications, contraindications, and therapeutic outcomes	1	CO5

Resisted Exercises Demonstration of types and techniques, including manual and mechanical resistance, Classification: isometric, dynamic (concentric, eccentric), constant vs. variable resistance, isokinetic, open-chain vs. closed-chain exercises, Indications, contraindications, and precautions	1	CO5
Passive Movements and Joint Mobilization Demonstration of passive movement techniques, Concepts including causes of immobility, classification, terminology, principles, indications, contraindications, and effects, Regional joint mobilization using passive and active methods	3	CO5
Soft Tissue Manipulation Techniques	10 Hours	CO6
Classification of Soft Tissue Manipulation Categorization of techniques based on method, depth, and therapeutic application	2	CO6
Effects and Clinical Considerations Physiological and therapeutic effects, Indications and contraindications for various techniques	2	CO6
Manual Techniques and Their Characteristics Characteristics and purpose of effleurage, stroking, kneading, petrissage, deep friction, vibration, and shaking	2	CO6
Practical Application of Techniques Performance of various soft tissue manipulation methods including effleurage, stroking, kneading, petrissage, deep friction, vibration, and shaking in clinical settings	4	CO6

PRACTICAL EXT 194

S. No.	Topics	Hours	Course Outcome
1.	Demonstrate the different types of muscle contraction, muscle work, group action of muscles and co-coordinated movements on self	1	CO1
2.	Demonstrate various fundamental and derived positions. And describe muscle work, and uses on self	1	CO1
3.	Measure the ROM of joints using handheld goniometer – upper limb, lower limb & trunk on human model	2	CO1
4.	Demonstrate the relaxed passive movement of joints of upper limb and lower limb on human model	1	CO1
5.	Instruct the patient to perform of the active mobilisation exercises of joints of upper limb and lower limb on human model	1	CO6
6.	Perform passive mobilisation exercises of different joints region wise on self /human model	1	CO6
7.	Demonstrate the testing of muscle strength/ function region wise – upper limb, lower limb and trunk On human model	1	CO2
8.	Perform all the soft tissue manipulative techniques region wise – upper limb, lower limb, neck, back and face On human model	1	CO2
1.	Demonstration ONLY [to be shown to the student by the teacher] 1. Digital goniometry 2. Pelvic inclinometry 3. Dynamometry 4. Accessory passive movement	2	CO2

Textbooks for EXT 104

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 EXT104

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 CODE BPT ELT 105

Course Title: Fundamentals of Electro Physical Agents (ELT) Theory (L) Practical (P)

ELT 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.

CO Code	Course Outcome (CO)	Mapped PO
CO1	Explain the biophysical principles, physiological and therapeutic effects of various electrotherapy modalities including low-frequency currents and heat agents.	PO1, PO6
CO2	Demonstrate operational skills in equipment handling, patient preparation, and safe application techniques for electrotherapy procedures.	PO1, PO4
CO3	Identify and apply appropriate electrotherapy modalities based on clinical assessment, including indications, contraindications, and dosage parameters.	PO5, PO6
CO4	Analyze the theories of pain and apply this understanding in clinical decision-making for pain management using modalities like TENS.	PO5, PO6
CO5	Maintain and ensure safety precautions of electrotherapy equipment, manage risks such as electric shock, and respond to emergencies appropriately.	PO1, PO8
CO6	Interpret results of electro-diagnostic tests (e.g., SD Curve, Rheobase, Chronaxie) and correlate with patient condition and physiotherapy planning.	PO2, PO5

Teaching learning methods

1. Lecture
2. Flipped class
3. Video demonstration
4. Demonstration
5. Lab work. Assessment methods

1. Short Essay
2. Viva Voce

S. No.	Unit	Hours	Course outcome
UNIT 1	Physical Principles In Relation to Physiotherapy	20 Hours	CO1
	Structure and Properties of matter-solids, liquids and gases, adhesion, surface tension, viscosity, density and elasticity. Structure of atoms, molecules, elements and compounds, election theory, static and current electricity.	5	CO1
	Conduction, Insulators, Potential difference, Resistance and Intensity. Ohm's Law, its application to AC and DC currents.	5	CO1
	Rectifying Devices-Thermionic valves, semiconductors, Transistors, Amplifiers, Transducers, Oscillator Circuits. Capacitance, Condensers in DC and AC circuits.	5	CO1
	Display devices and indicators-analogue & digital.	5	CO1
UNIT 2	Effects of Current Electricity and Related Physical Principles	20Hours	

2	Chemical and Magnetic Effects of Electric Current Role of ions and electrolytes in current conduction, Ionization and generation of electromotive force (EMF) through chemical reactions, Magnetic effects of current: molecular, theory of magnetism, magnetic fields, and the principle of electromagnetic induction		CO2
	Measuring and Control Instruments Function and application of milliammeter and voltmeter, Working principles of transformers and choke coils, Thermal effects of current: Joule's law and heat production		
	Physical Principles of Light Nature, behavior, and properties of light relevant to therapeutic applications		
	Physical Principles of Sound Characteristics and propagation of sound waves and their relevance in clinical contexts		
	Electromagnetic Spectrum Structure and properties of the electromagnetic spectrum, Biophysical applications of various regions of the spectrum in therapeutic modalities		
3.	Electrical Supply and Safety in Clinical Settings	20 Hours	CO2
	Overview of Electrical Supply Systems Basic structure and components of the main electric power supply, Potential hazards associated with electrical systems, including short circuits and electric shocks	10	CO2

	Electrical Safety Measures Safety precautions in handling electrical equipment in clinical environments, Function and importance of safety devices such as earthing systems, fuses, and circuit breakers, Emergency response: first aid and initial management procedures for electric shock incidents	10	CO2
Unit 2	Low Frequency Currents	20 Hours	CO3
4	Introduction: Overview of direct, alternating, and modified currents, Biophysical characteristics and therapeutic relevance in clinical physiotherapy	4	CO3
	Iontophoresis: Biophysical basis and mechanism of drug delivery, Principles of current application and ion movement, Therapeutic applications, indications, and contraindications, Equipment handling, dosage parameters, and patient preparation.	4	CO3
	Faradic Current Biophysics and properties of faradic stimulation, Clinical uses for muscle re-education and strengthening, Indications, contraindications, and required precautions, Operational skills in equipment use and patient setup	4	CO3
	Interrupted Direct Current (IDC) Biophysical properties and mode of action, Therapeutic applications in denervated muscle stimulation, Clinical indications, contraindications, and patient safety considerations, Equipment settings and patient preparation techniques	4	CO3
	Transcutaneous Electrical Nerve Stimulation	4	CO3

	(TENS) Types of low-frequency currents used in TENS, Parameters: pulse width, frequency, and intensity, Theoretical models of pain modulation (e.g., Gate Control Theory, Endorphin Release), Clinical applications, physiological effects, indications, contraindications, and precautions, Proficiency in equipment operation and patient preparation		
Unit 3	Electrical Reactions and Electro-Diagnostic Tests	10 Hours	CO4
	Electrical stimuli and normal behaviour of nerve and muscle tissue. Types of lesions and development of reaction of degeneration.	3	CO4
	Faradic/Intermittent direct current test.	3	CO4
	S.D. Curve and its application. Chronaxie, Rheobase and pulse ratio.	4	CO4
Unit 4	Infrared Radiation Therapy	20 Hours	CO5
	Physical Properties and Generation of Infrared Rays: Wavelength and frequency characteristics of infrared radiation, Classification of infrared rays and sources used for clinical application, Techniques for generating and applying IRR in therapeutic settings	10	CO5
	Clinical Application of Infrared Therapy: Physiological and therapeutic effects on tissue, Clinical indications, contraindications, and necessary precautions, Operational competency in handling equipment and preparing the patient for	10	CO5

	treatment		
Unit 5	Superficial Heat Modalities	5 Hours	CO4
	Paraffin wax bath, moist heat, electrical heating pads. Mechanism of production. Mode of heat transfer. Physiological & therapeutic effects. Indications, contraindications, precautions, operational skills of equipment and Patient preparation.	5	

PRACTICAL B.P.T. Fundamentals of Electro Physical Agents 105 Practical: FoEA (P) ELT105

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

S. No.	Topics	Hours	Course Outcome
1.	Identify components and safety devices involved in electric supply of the electrotherapy department.	1	CO1
2.	Experience sensory and motor stimulation of nerves and muscles by various types of low frequency currents on self.	1	CO1
3.	Locate and stimulate different motor points region wise including the upper & lower limb, trunk face. On human model	2	CO1
4.	Demonstrate the application of special techniques of low frequency current including Faradic foot bath, faradism under pressure	1	CO1
5.	Demonstrate the application of techniques of Iontophoresis	1	CO6
6.	Demonstrate the plotting of strength duration curve and find out Chronaxie and Rheobase.	1	CO6
7.	Demonstrate the techniques of application of various types of IR lamps to various body regions	1	CO2
8.	Demonstrate the techniques of application of paraffin wax bath to various body regions	1	CO2
9.	Demonstrate the techniques of application of TENS to various body regions	2	CO2

Recommended reference books for ELT105

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

COURSE CODE BPT PSY 106

Recommended Course Outcomes (COs)

After completion of this course, the student shall be able to:

CO1. Explain the fundamental concepts, principles, and schools of psychology and their relevance to physiotherapy practice.

CO2. Describe human growth and development across the lifespan and explain the influence of biological, psychological, and environmental factors on behaviour.

CO3. Analyse psychological processes including sensation, perception, emotion, motivation, learning, memory, and intelligence in relation to health and rehabilitation.

CO4. Evaluate personality, stress, coping mechanisms, and behavioural responses to illness using appropriate psychological principles.

CO5. Apply principles of social and clinical psychology to establish effective therapist–patient relationships, communication, counselling, and rehabilitation.

CO6. Demonstrate professional behaviour, empathy, ethical decision-making, and psychosocial management while working with patients of different age groups and clinical conditions.

Course Title: Psychology and Sociology (PSY) and (SOC) Theory (L)

PYS 1.0. Subject Description and instruction to teacher

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

	Topics	Hours	Course Outcome
UNIT 1	Introduction to Psychology	7 Hours	CO1
	Schools: Structuralism, functionalism, behaviourism, Psychoanalysis. Methods: Introspection, observation, inventory and experimental method. Branches: pure psychology and applied psychology importance of study of Psychology to physiotherapy	7	CO1
UNIT 2	Developmental Psychology	7 Hours	CO2
	Growth and Development Nature of growth and development, Characteristics of growth and development. Developmental periods of infancy. Childhood, adolescence, adulthood and old age, Factors affecting growth and development. Role of heredity and environment and their relative importance in physical, psychological and social development	7	CO2
UNIT 3	Emotions and perception	7 Hours	CO3
	Emotions Concept and definition, Theories of emotions, Physiological changes due to emotional state. Nature and control of anger, fear and anxiety. Sensation, attention and perception Meaning and definition. Types of sensation and Perception. Principles of Perception. Illusion and hallucination concept of attention and Factors determining attention	7	CO3
UNIT 4	Motivation and Learning	7 Hours	CO3

	Definition, needs, drives and motives, primary motives and secondary motives, Achievement motivation. theories of motivation & Learning, Concepts, Characteristics, Types, Laws of Learning, Theories of learning, Trial and Error theory, Conditioning-classical and operant, Insight theory of learning, Factors influencing learning. Effective ways to learn: Massed/Spaced, Whole/Part, Recitation/Reading, Serial/Free recall, Incidental/Intentional learning, Knowledge of results, association, organization, and mnemonic methods. Intelligence; Discuss Characteristics, Types. IQ. Mental age. Assessment of intelligence, intelligence tests-verbal and performance test	7	
UNIT 5	Psychology of frustration and Stress	8 Hours	CO4
	Frustration and stress under the following headings: Definition. Causes, Sources of frustrations, Conflict, Different types of conflicts, Adjustment and maladjustment. Defence Mechanism. Different types of Anxiety, Tension, Physiological symptoms, causes reactions to stresses, psycho-somatic problems, coping strategies, management of stress.	8	
UNIT-6	Personality	8 Hours	CO4
	Personality and Describe Factors in personality development tools of Measurement of Personality-: observation, situational test, questionnaire, rating scale, interview, and projective techniques. Defence Mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjection, acting out. Psychological reactions of a patient during admission and treatment in terms of possible Anxiety, shock denial, suspicion. Loneliness, shame, guilt, rejection, fear, withdrawal,	8	CO4

	depression, egocentric, justification and loss of hope.		
UNIT 7	Social psychology	8 Hours	CO5
	Different types of leaders and Different theoretical approaches to leadership. Development of attitude and change of attitude.	8	CO5
UNIT 8	Clinical psychology	8 Hours	CO6
	Models of training, abnormal behaviour assessment, clinical judgement, psychotherapy, self-management methods, physiotherapist patient interaction, aggression, Self-imaging, assertive training, Group therapy, Body awareness, paediatric, child and geriatric clinical psychology.	8	8 Hours

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 Sociology

Unit	Topics	Hours	Course Outcome
UNIT 1	Introduction to sociology	30 Hours	CO2
	Meaning 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.	6	CO2
	Importance of its study with special reference to Health Care Professionals.	6	CO2
	Social Factors in Health and Disease situations: Meaning of social factors, Role of social factors in health and illness	6	CO2
	Socialization: Meaning and nature of socialization. Primary, Secondary and Anticipatory socialization. Agencies of socialization.	6	CO2
	Social Groups: Concepts of social groups influence of formal and informal groups on health and sickness. The role of primary and secondary groups in the hospital and rehabilitation setup.	6	CO2
	Family: The family, meaning and definitions. Functions of types of family Changing family patterns, Influence of family on the individual's health, family and nutrition, the effects of sickness in the family and psychosomatic disease and their importance to physiotherapy.	6	CO2
UNIT 2	Community	30 Hours	CO4
	Rural community: Meaning and features – Health hazards of ruralities, health hazards	4	CO4

	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	4	CO4
	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.	6	CO4
	Social Problems of disabled: Consequences of the following social problems in relation to sickness and disability, remedies to pre-vent these problems. Population explosion 1. Poverty and unemployment 2. Beggary 3. Juvenile delinquency 4. Prostitution 5. Alcoholism 6. Problems of women in employment 7. Geriatric problems Problems of underprivileged	5	CO4

	Social Security: Social security and social legislation in relation to the disabled	1	CO4
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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

SUBJECT: FUNDAMENTALS OF HEALTH CARE DELIVERY SYSTEM IN INDIA

SUBJECT CODE: BPT 107

CREDITS Hours: 8

Course Objectives:

The course aims to provide students with foundational knowledge about the healthcare delivery system in India. It compares the Indian system with global healthcare systems, emphasizing national health missions, policies, the role of physiotherapy, and evolving trends such as corporatization and globalization in healthcare.

Course Outcomes (CO):

1. Understand the structure and functioning of the Indian healthcare delivery system across all levels.
2. Evaluate national health programs and policies with a focus on their implementation and impact.
3. Analyze the health status of India historically and in future projections.
4. Understand the professional role of physiotherapists in public health systems.
5. Explore challenges like corporatization, globalization, and health reforms in Indian healthcare.
6. Demonstrate awareness of health financing, insurance, and workforce roles in the healthcare system.

Teaching learning methods:

1. Lecture
2. Flipped Class
3. Group Discussion
4. Case-based Teaching
5. Field Visits

Assessment Methods:

1. Written Short Essay
2. Viva Voce

S. No.	Unit	Hours	Course Outcome
	Introduction to the Indian Healthcare System	20 Hours	CO1
UNIT 1	Structure of the Healthcare System in India: Overview of the organizational framework at national, state, and district levels, Roles of central and state health ministries, health missions, and allied agencies	5	CO1
	Levels of Healthcare Delivery: Classification and functions of primary, secondary, and tertiary care services, Role of sub-centres, primary health centres (PHCs), community health centres (CHCs), district hospitals, and apex institutions	5	CO1
	Community Participation in Healthcare Involvement of communities in health planning, delivery, and monitoring.	5	CO1
	Role of local governance, ASHA workers, NGOs, and health committees in promoting public health, Public and Private Sector Interface: Comparative roles, reach, and challenges of public vs. private healthcare providers, Public-private partnerships (PPP) and their significance in healthcare delivery	5	CO1
UNIT 2	Health Systems – India and Beyond	20	CO2, PO1
	Overview of Health Systems in Developed Countries - Structural and functional features of healthcare systems in countries such as the United Kingdom (NHS), United States, Canada, and Australia - Models of healthcare financing: Beveridge model, Bismarck model,		

	National Health Insurance model, and Out-of-Pocket model 2 Comparative Analysis with the Indian Healthcare System - Evaluation of similarities and differences in governance, access, equity, quality, and outcomes - Challenges and strengths unique to India in the global healthcare context 3 Role of the National Health Mission (NHM) - Objectives, key components, and implementation mechanisms of NHM - Focus areas: maternal and child health, communicable and non-communicable diseases, rural and urban health initiatives 4 National Health Policy of India - Vision, goals, and strategic frameworks outlined in the latest National Health Policy - Priorities in preventive, promotive, and curative healthcare		
Unit 3	National Health Programs	20 Hours	CO2, PO2
	National Health Programs, Objectives, planning, outcomes, and challenges Focused study of major programs (e.g., RNTCP, NACP, RMNCH+A)	20	CO2
Unit 4	Health Status and Role of Physiotherapy	20 Hours	CO3, PO2
	Health Status and Role of Physiotherapy India's health status (past, present, future) Role and scope of physiotherapy in public health	20	CO3

	Societal expectations		
	Concepts in Health Promotion and Global Trends		
Unit 5	Concepts in Health Promotion and Global Trends Concepts of health, disease, and prevention Corporatization and globalization in healthcare - Health reforms	20	CO4, PO3
	Healthcare Financing and Workforce		CO5, CO6, PO3
UNIT 6	Healthcare Financing and Workforce Health insurance basics Role of financing in healthcare Types of healthcare professionals and training Primary vs specialty care	20	CO5, CO6

Recommended Textbooks:

1. Park's Textbook of Preventive and Social Medicine – K. Park, M/s Banarsidas Bhanot
2. Textbook of Community Medicine – Sunder Lal, Adarsh, Pankaj, CBS Publishers

Reference Books:

1. National Health Programs of India – J.K. Mary, Century Publications

Online Government & Institutional Sources:

1. National Health Mission: <https://nhm.gov.in>
2. Ministry of Health and Family Welfare: <https://main.mohfw.gov.in>
3. National Health Policy 2017:
https://www.nhp.gov.in/nhpfiles/national_health_policy_2017.pdf
4. National Institute of Health and Family Welfare: <http://www.nihfw.org>

COURSE TITLE - ENGLISH, COMMUNICATION AND SOFT SKILLS: (ENG) :

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

1. Apply basic grammar and writing skills effectively.
2. Communicate ideas both orally and in writing with a high level of proficiency.
3. Use appropriate expressions in various situations and topics of interest.
4. Speak English fluently and comprehensibly.
5. Demonstrate independence in using basic language structures in both oral and written communication.

Course Contents: B.P.T. ENG 108 Theory (NUES)

Major topics to be covered under Communication course

Unit	Topics	Hours	Course outcome
	Section A		
1.	Basic Language Skills: Grammar and Usage.	3	CO1
	Business Communication Skills. With focus on speaking - Conversations, discussions, dialogues, short presentations, pronunciation	4	CO2
	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.	5	CO3
	Basic concepts & principles of good communication	2	CO4
	Section B		
	Special characteristics of health communication	2	CO4
	Types & process of communication – verbal, non-verbal and written communication. Upward, downward and lateral communication.	4	CO5
	Therapeutic communication: empathy versus sympathy	4	CO4
	Communication methods for teaching and learning.	5	CO5
	Communication methods for patient education.	5	CO5
	Barriers of communication & how to overcome.	4	CO5

COURSE CODE- IT 109 (NUES)

**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
5. Understand the role of digital technology in the Health sciences

Unit	Topics	Hours	CO
Unit 1	Introduction to Computer		
1.	Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages. 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).	3	CO1
UNIT 2	Memory and storage		
	Processor and memory: The Central Processing Unit (CPU), main memory.	4	CO2

	Storage Devices: Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices.		
UNIT 3	Window		
	1 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.). 2 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. 3 Introduction to Excel: introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs. 4 Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs/ photos/ Videos.	5	CO3
UNIT 4	Introduction of Operating System	2	CO4
	Introduction, operating system concepts, types of operating system,		
UNIT 5	Networks and Internet		
	Computer networks: introduction, types of networks (LAN, MAN, WAN, Internet, Intranet), network	2	CO4

	topologies (star, ring, bus, mesh, tree, hybrid), components of network. 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.		
	Application of Computers in clinical settings.	4	CO5

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

IT (P) 2.1. Practical on fundamentals of computers

S. No.	Topics	Hours	Course Outcome
1.	Learning to use MS office: MS word, MS PowerPoint, MS Excel.	1	
2.	To install different software.	1	
3.	Data entry efficiency	1	

UNIVERSITY OF ENGINEERING & MANAGEMENT
Good Education, Good Jobs

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

COr 1.0. The objective of this section of the foundation course is to sensitize potential learners with essential knowledge; this will lay a sound foundation for their learning across the undergraduate 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.

