CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester I

Course Code: BPT – 101

Course Title: Human Anatomy -1

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
4	6	10	4	3	7	100	100	200

Course Outline: It is designed to provide students with the working knowledge of the structure of the human body including histology, embryology and regional anatomy of thorax, and abdomen which is essential foundation for their clinical studies.

Sr No	Title of the Unit	Minimum number of Hours
1.	Histology	20
2.	Embryology	20
3.	Musculo Skeletal Anatomy	45
4.	Lower Extremity	50
5.	Pelvis	30
6.	Endocrine Glands	25

Total hours (Theory): 76 Hrs

Total hours (Practical): 114 Hrs

Total hours: 190 Hrs

Unit Sr No	Course Content	Hours of Teaching
1	**Histology**	**20 Hours**
1.1	Histology: General Histology, study of the basic tissues of the body; Microscope, Cell, Epithelium, Connective Tissue, Cartilage, Bone, Muscular tissue, Nerve Tissue – TS & LS	
1.2	Circulatory system – large sized artery, medium sized artery, large sized vein, lymphoid tissue, Skin and its appendages	
2	**Embryology**	**20 Hours**
2.1	Ovum, Spermatozoa, fertilization and formation of the Germ layers and their derivations	
2.2	Development of skin, Fascia, blood vessels, lymphatic	
2.3	Development of bones, axial and appendicular skeleton and muscles	
2.4	Neural tube, brain vessels and spinal cord	
2.5	Development of brain and brain stem structures	
3	**Musculo Skeletal Anatomy**	**45 Hours**
3.1	Anatomical positions of body, axes, planes, common anatomical terminologies (Groove, tuberosity, trochanters) etc	
3.2	Connective tissue classification	
3.3	Bones - Composition & functions, classification and types according to morphology and development	
3.4	Joints - definition-classification, structure of fibrous, cartilaginous joints, blood supply and nerve supply of joints	
3.5	Muscles – origin, insertion, nerve supply and actions	
4	**Lower Extremity**	**50 Hours**
4.1	Osteology: Hip bone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges	
4.2	Soft parts: Gluteal region, front and back of the thigh (Femoral triangle, femoral canal and inguinal canal), medial side of the thigh (Adductor canal), lateral side of the thigh, popliteal fossa, anterior and posterior compartment of leg, sole of the foot, lymphatic drainage of lower limb, venous drainage of the lower limb, arterial supply of the lower limb, arches of foot, skin of foot	
4.3	Joints: Hip Joint, Knee joint, Ankle joint, joints of the foot	

5	**Pelvis**	**30 Hours**
5.1	Pelvic girdle and muscles of the pelvic floor	
5.2	Position, shape, size, features, blood supply and nerve supply of the male and female reproductive system	
6	**Endocrine Glands**	**25 Hours**
6.1	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	

Course Outcomes (COs):

At the end of the course, the students will 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	Identify clinically relevant injuries, lesions and anatomical malformations including musculoskeletal and nervous system

Recommended Text Books:

1. Chaurasia BD. Human anatomy Volume- I, II & III, CBS Publisher

2. Inderbir Singh, Text book of Anatomy with color Atlas – Vol. 1, 2, 3. Jaypee Brothers
3. Snell RS. Clinical anatomy: an illustrated review with questions and explanations. Lippincott Williams & Wilkins; 2004
4. Textbook of Anatomy, Vol 1,2,3 by Vishram Singh

Recommended Reference Books:

1. Gray's Anatomy, Latest edition, Elsevier Publications
2. Snell – Clinical Anatomy- Lippincott
3. Principles of anatomy and physiology by Tortora; Latest edition; Harper & Row Publications
4. Cunningham's Manual of Practical Anatomy; Latest edition, Vol: 1, 2, 3; Oxford Publications

CO-PO-PSO Matrix

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PS O4	PS O5
CO1	2	1	-	1	-	1	-	-	1	-	1	-	3	1	1	1	1
CO2	1	2	-	1	-	1	-	-	1	-	1	-	3	1	1	1	1
CO3	2	2	-	1	-	1	-	-	1	-	1	1	3	1	1	1	3
CO4	2	3	-	1	-	1	-	-	1	-	1	1	3	1	1	1	1
CO5	3	3	-	1	-	1	-	-	1	-	1	1	3	1	2	1	2
CO6	3	3	-	1	-	1	-	-	1	-	1	1	3	1	2	1	2
CO7	2	2	-	1	-	1	-	-	1	-	1	-	3	1	1	1	1
CO8	1	1	-	1	-	1	-	-	1	-	1	1	3	1	3	1	1
CO9	1	1	-	1	-	1	-	-	1	-	1	1	3	1	1	1	1
CO10	1	1	-	1	-	1	-	-	1	-	1	1	3	1	1	1	1

CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester I

Course Code: BPT – 102

Course Title: Human Physiology -1

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
4	2	6	4	1	5	100	100	200

Course Outline: The course is designed to give the student an in-depth knowledge of fundamental reactions of living organisms, particularly in the human body. The major topics covered include the following: the cell; primary tissue; connective tissue; skin; muscle; nervous tissue; blood; lymphoid tissues; respiration; blood vessels; circulation; cardiac cycle; systemic circulation; gastrointestinal tract; kidneys; uterus; urinary tract; pregnancy; endocrine system.

Sr No	Title of the Unit	Minimum number of Hours
1.	General Physiology	05
2.	Blood	22
3.	Nerve Muscle Physiology	15
4.	Cardiovascular System	22
5.	Respiratory System	20
6.	Digestive System	15
7.	Endocrine System	15

Total hours (Theory): 76 Hrs

Total hours (Practical): 38 Hrs

Total hours: 114 Hrs

Unit Sr No	Course Content	Hours of Teaching
1	**General Physiology**	5 Hours
1.1	Cell: Morphology, Organelles: their structure and functions	
1.2	Transport Mechanisms across the cell membrane	
1.3	Body fluids: Distribution, composition	
2	**Blood**	22 Hours
2.1	Introduction: Composition and functions of blood	
2.2	Plasma: Composition, formation, functions. Plasma proteins	
2.3	RBC: count and its variations. Erythropoiesis- stages, factors regulating, Reticulo endothelial system (in brief) Hemoglobin –structure, function and derivatives Anemia (in detail), types of Jaundice, Blood indices, PCV, ESR	
2.4	WBC: Classification. Morphology, functions, count, its variation of each, Immunity	
2.5	Platelets: Morphology, functions, count, its variations	
2.6	Hemostatic mechanisms: Blood coagulation–factors, mechanisms, their disorders, Anticoagulants	
2.7	Blood Groups: Landsteiner's law, Types, significance, determination, Erythroblastosis foetalis	
2.8	Blood Transfusion: Cross matching, Indications and complications	
2.9	Lymph: Composition, formation, circulation and functions	
2.10	Applied Physiology: Blood functions a. Thalassemia Syndrome, Hemophilia, VWF b. Anemia, Leukocytosis c. Bone marrow transplant	
3	**Nerve Muscle Physiology**	15 Hours
3.1	Introduction: Resting membrane potential. Action potential – ionic basis and properties	
3.2	Nerve: Structure and functions of neurons, Classification, Properties and impulse transmission of nerve fibers, Nerve injury – degeneration and regeneration	
3.3	Neuroglia: Types and functions	
3.4	Muscle: Classification. Skeletal muscle: Structure, Neuromuscular junction: Structure.	

	Neuromuscular transmission, myasthenia gravis, Excitation- Contraction coupling, Rigor mortis	
3.5	Applied Physiology: Muscles and Nervous System Functions a. Peripheral nervous system, neuromuscular transmission, Types of nerve fibers b. Action potential, Strength-duration curve, ECG, EMG, VEP, NCV c. Degeneration and regeneration of nerve, Reactions of denervation's d. Synaptic transmission, Stretch reflex- Mechanism and factors affecting it e. Posture, Balance and Equilibrium/Coordination of voluntary movement f. Voluntary motor action, clonus, Rigidity, incoordination g. Sympathetic and Parasympathetic regulation, Thermoregulation	
4	**Cardiovascular System**	**22 Hours**
4.1	Introduction: Physiological anatomy and nerve supply of the heart and blood vessels, Organization of CVS, Cardiac muscles: Structure, Ionic basis of action potential and pacemaker potential, Properties	
4.2	Conducting system: 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	
4.3	Cardiac Output: Definition. Normal value, Determinants, Stroke volume and its regulation, Heart rate and its regulation and Their variations	
4.4	Arterial Blood Pressure: Definition, Normal values and its variations, Determinants, Peripheral resistance, Regulation of BP	
4.5	Arterial pulse	
4.6	Shock – Definition, Classification – causes and features	
4.7	Regional Circulation: Coronary, Cerebral and Cutaneous circulation	
4.8	Cardiovascular changes during exercise	
4.9	Applied Physiology: Cardio vascular Functions a. Blood flow through arteries, arterioles, capillaries, veins and venuoles b. Circulation of Lymph, oedema c. Factors affecting cardiac output d. Circulatory adjustment in exercise and in postural and gravitational changes e. Pathophysiology of fainting and heart failure	

5	**Respiratory System**	**20 Hours**
5.1	Introduction: Physiological anatomy – Pleura, tracheo-bronchial tree, alveolus, respiratory membrane and their nerve supply, Functions of respiratory system, Respiratory muscles	
5.2	Mechanics of breathing: Intrapleural and Intrapulmonary pressure changes during respiration, Chest expansion, Lung compliance: Normal value, pressure-volume curve, factors affecting compliance and its variations, Surfactant – Composition, production, functions and RDS	
5.3	Spirometry: Lung volumes and capacities, Timed vital capacity and its clinical significance, Maximum ventilation volume, Respiratory minute volume	
5.4	Dead Space: Types and their definition	
5.5	Pulmonary Circulation, Ventilation-perfusion ratio and its importance	
5.6	Transport of respiratory gases: Diffusion across the respiratory membrane, Oxygen transport – Different forms, oxygen - hemoglobin dissociation curve, Factors affecting it P50, Haldane and Bohr effect, Carbon dioxide transport: Different forms, chloride shift	
5.7	Regulation of Respiration: Neural Regulation, Hering-breuer's reflex, Voluntary control, Chemical Regulation	
5.8	Hypoxia: Effects of hypoxia. Types of hypoxia, Hyperbaric oxygen therapy, Acclimatization Hypercapnoea, Asphyxia. Cyanosis – types and features, Dysbarism	
5.9	Disorders of Respiration: Dyspnea, Orthopnea, Hyperpnea, hyperventilation, apnea, tachypnea, Periodic breathing – types Artificial respiration	
5.10	Respiratory changes during exercise	
5.11	Applied Physiology: Pulmonary Functions a. Properties of gases, Mechanics of respiration, Diffusion capacity, special features of pulmonary circulation and their application b. Respiratory adjustments in exercises c. Artificial respiration d. Breath sounds	
6	**Digestive System**	**15 Hours**
6.1	Introduction: Physiological anatomy and nerve supply of alimentary canal, Enteric nervous system	
6.2	Salivary Secretion: Saliva: Composition, Functions, Regulation, Mastication (in brief)	
6.3	Swallowing: Definition, Different stages, Function	

6.4	Stomach: Functions. Gastric juice: Gland, composition, function, regulation, Gastrin: Production, function and regulation, Peptic ulcer, Gastric motility, Gastric emptying. Vomiting	
6.5	Pancreatic Secretion: Composition, production, function, Regulation	
6.6	Liver: Functions of liver. Bile secretion: Composition, functions and regulation, Gall bladder: Functions	
6.7	Intestine: Succus entericus: Composition, function and regulation of secretion, Intestinal motility and its function and regulation	
6.8	Mechanism of Defecation	
7	**Endocrine System**	**15 Hours**
7.1	Introduction: Major endocrine glands, Hormone: classification, mechanism of action, Functions of hormones	
7.2	Pituitary Gland: Anterior Pituitary and Posterior Pituitary hormones: Secretory cells, action on target cells, regulation of secretion of each hormone Disorders: Gigantism, Acromegaly, Dwarfism, Diabetes insipidus, Physiology of growth and development: hormonal and other influences	
7.3	Pituitary-Hypothalamic Relationship	
7.4	Thyroid Gland: Thyroid hormone and calcitonin: secretory cells, synthesis, storage, action and regulation of secretion Disorders: Myxedema, Cretinism, Grave's disease	
7.5	Parathyroid hormones: secretory cell, action, regulation of secretion Disorders: Hypoparathyroidism, Hyperthyroidism, Calcium metabolism and its regulation	
7.6	Adrenal Gland: Adrenal Cortex: Secretory cells, synthesis, action, regulation of secretion of Aldosterone, Cortisol, and Androgens Disorders: Addison's disease, Cushing's syndrome, Conn's syndrome, Adrenogenital syndrome	
7.7	Adrenal Medulla: Secretory cells, action, regulation of secretion of adrenaline and noradrenaline Disorders: Phoechromocytoma.	
7.8	Endocrine Pancreas: Secretory cells, action, regulation of secretion of insulin and glucagon. Glucose metabolism and its regulation Disorder: Diabetes mellitus	

7.9	Calcitriol, Thymus and Pineal gland (very brief)
7.10	Local Hormones. (Briefly)
7.11	Applied Physiology: Metabolic Functions a. Diabetes Mellitus, Physiological basis of Peptic Ulcer

Course Outcomes (COs):

At the end of the course, the students will 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	Discuss the common physiological deviations of cardio-vascular, respiratory, musculoskeletal and nervous systems related to physiotherapy practice

Recommended Text Books:

1. Human Physiology – Vol. 1 & 2, Chatterjee. CC, Calcutta. Medical Allied
2. Concise Medical Physiology Chaudhari, 4th Edition S.K, New Central Agency, Calcutta
3. Human Physiology, Sembulingam: 9th Edition, Jaypee Brothers
4. Principles of Anatomy and Physiology. Tortora & Grabowski –Harper Collins
5. Text book of Practical Physiology Ghai – Jaypee

Recommended Reference Books:

1. Textbook of Medical Physiology by Guyton & Hall, 11th edition; Elseveir Publication
2. Principles of Anatomy & Physiology, Tortora, 8th Edition; Harper & Row Publication
3. Best & Taylor's Physiological Basis of Medical Practice

CO PO PSO Matrix

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PS O4	PS O5
CO1	2	1	1	2	1	1	1	1	1	1	1	2	2	1	1	1	1
CO2	1	2	1	2	2	1	1	2	1	1	1	3	1	2	1	1	1
CO3	2	2	3	2	1	1	1	3	1	2	2	3	2	3	1	1	3
CO4	2	3	1	2	2	3	1	2	1	2	1	2	2	2	1	1	1
CO5	3	3	2	1	3	1	1	2	2	2	1	2	3	2	2	2	2
CO6	3	3	2	1	3	2	1	2	2	2	1	2	3	2	2	2	2
CO7	2	2	1	1	2	1	1	1	1	2	1	3	2	1	1	1	1
CO8	1	1	1	3	1	2	2	1	3	2	3	1	1	1	3	3	1

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FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester I

Course Code: BPT – 103

Course Title: Biochemistry

Course Credit Hours:

Hrs. / Wk.			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
2	2	4	2	1	3	50	50	100

Course Outline: The course is designed to give the student knowledge about the reactions of cell, nutritional aspects of metabolism, biochemical aspects of muscle contraction. It also includes the clinical lab investigations of Liver, renal, fat, lipid, bone and electrolyte imbalances.

Sr No	Title of the Unit	Minimum number of Hours
1.	Nutrition	07
2.	Carbohydrate chemistry	05
3.	Lipid chemistry	05
4.	Amino-acid Chemistry	04
5.	Enzymes	03
6.	Nucleotide and Nucleic acid Chemistry	04
7.	Digestion and Absorption	04
8.	Carbohydrate Metabolism	05
9.	Lipid Metabolism	06
10.	Amino acid and Protein Metabolism	03
11.	Vitamins	03
12.	Mineral Metabolism	03
13.	Cell Biology	03
14.	Muscle Contraction	03
15.	Biochemistry of Connective tissue	03

16.	Hormone Action	03
17.	Acid-Base balance	03
18.	Water balance	03
19.	Electrolyte balance	03
20.	Clinical Biochemistry	03

Total hours (Theory): 38 Hrs

Total hours (Practical): 38 Hrs

Total hours: 76 Hrs

Unit Sr No	Course Content	Hours of Teaching
1	**Nutrition**	**7 Hours**
1.1	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	
1.2	Physical activities - Energy expenditure for various activities. Calculation of energy requirement of a person	
1.3	Balanced diet i. Recommended dietary allowances ii. Role of carbohydrates in diet: Digestible carbohydrates and dietary fibers iii. Role of lipids in diet iv. 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, Nutritional disorders	
2	**Carbohydrate chemistry**	**5 Hours**
2.1	Definition, general classification with examples, Glycosidic bond	
2.2	Structures, composition, sources, properties and functions of Monosaccharides, Disaccharides, Oligosaccharides and Polysaccharides	
2.3	Glycosaminoglycan (mucopolysaccharides)	
3	**Lipid chemistry**	**5 Hours**
3.1	Definition, general classification	
3.2	Definition, classification, properties and functions of Fatty acids, Triacylglycerol, Phospholipids, Cholesterol	
3.3	Essential fatty acids and their importance	
3.4	Lipoproteins: Definition, classification, properties, Sources and function Ketone bodies	
4	**Amino-acid Chemistry**	**4 Hours**
4.1	Amino acid chemistry: Definition, Classification, Peptide bonds	
4.2	Peptides: Definition, biologically important peptides	
4.3	Protein chemistry: Definition, Classification, Functions of proteins	

5	**Enzymes**	**3 Hours**
5.1	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)	
6	**Nucleotide and Nucleic acid Chemistry**	**4 Hours**
6.1	Nucleotide chemistry: Nucleotide composition, functions of free nucleotides in body.	
6.2	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	
7	**Digestion and Absorption**	**4 Hours**
7.1	General characteristics of digestion and absorption, Digestion and absorption of carbohydrates, proteins and lipids Disorders of digestion and absorption – Lactose intolerance	
8	**Carbohydrate Metabolism**	**5 Hours**
8.1	Introduction, Glycolysis – Aerobic, Anaerobic Citric acid cycle, Substrate level phosphorylation	
8.2	Glycogen metabolism – Glycogenesis, Glycogenolysis, Metabolic disorders glycogen, Gluconeogenesis, Cori cycle	
8.3	Hormonal regulation of glucose, Glycosuria, Diabetes mellitus	
9	**Lipid Metabolism**	**6 Hours**
9.1	Introduction to lipid metabolism, Lipolysis, Oxidation of fatty acids -oxidation of fatty acids	
9.2	Lipogenesis - Denovo synthesis of fatty acids, chain elongation, desaturation, triacylglycerol synthesis, fat metabolism in adipose tissues	
9.3	Ketone body metabolism: Ketone body formation (ketogenesis), utilization (ketolysis), ketosis, Rothera's test	
9.4	Cholesterol metabolism: synthesis, degradation, cholesterol transport	
9.5	Hypercholesterolemia and its effects (atherosclerosis and coronary heart diseases) Hypocholesterolemic agents, Common hyperlipoproteinemia, Fatty liver	
10	**Amino acid and Protein Metabolism**	**3 Hours**

10.1	Catabolism of amino acids - Introduction, transamination, deamination, Fate of ammonia, transport of ammonia, Urea cycle	
10.2	Specialized products formed from amino acids - from glycine, arginine, methionine, phenylalanine and tyrosine	
11	**Vitamins**	**3 Hours**
11.1	Definition, classification according to solubility,	
11.2	Individual vitamins - Sources, Coenzyme forms, functions, RDA, digestion, absorption and transport, deficiency and toxicity	
12	**Mineral Metabolism**	**3 Hour**
12.1	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	
13	**Cell Biology**	**3 Hours**
13.1	Introduction, Cell structure, Cell membrane structure and function, various types of absorption. Intracellular organelles and their functions, briefly on cytoskeleton	
14	**Muscle Contraction**	**3 Hours**
14.1	Contractile elements in muscle, briefly on the process of muscle contraction, Energy for muscle contraction	
15	**Biochemistry of Connective tissue**	**3 Hours**
15.1	Introduction, various connective tissue proteins: Collagen, elastin - Structure and associated disorders, Glycoproteins, Proteoglycans	
16	**Hormone Action**	**3 Hours**
16.1	Definition, classification, Mechanism of hormone action, Receptors, signal transduction, second messengers and cell function	
17	**Acid-Base balance**	**3 Hours**
17.1	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	
18	**Water balance**	**3 Hours**
18.1	Water distribution in the body, Body water, water turnover, Regulation of water balance: role of ADH and thirst center	
19	**Electrolyte balance**	**3 Hours**

19.1	Osmolarity. Distribution of electrolytes	
19.2	Electrolyte balance: Role of aldosterone, rennin angiotensin system and ANF	
20	**Clinical Biochemistry**	**3 Hours**
20.1	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	

Course Outcomes (COs):

At the end of course, the students will be able to

CO1	Describe the structure, composition and functions of cell
CO2	Describe the structure and functions of cell membrane
CO3	Explain the metabolism of carbohydrates, Lipids, proteins and amino acids
CO4	Describe the types, composition and utilization of vitamins
CO5	Explain the effect of exercise related biochemical changes and its application to exercise prescription

Recommended Text Books:

1. Essentials of Biochemistry by U. Satya Narayan, Latest Edition, Books and Allied Publications
2. Textbook of Biochemistry- Chatterjee M.N.-Jaypee Brothers
3. Textbook of Biochemistry for Medical Students Vasudeval D.M. Jaypee Brothers
4. Clinical Biochemistry- metabolic & Clinical aspects- Marshall &Bangert- Churchill Livingstone
5. Biochemistry Southerland-Churchill Livingstone

Recommended Reference Books:

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 Harpa

CO-PO-PSO Matrix

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PS O4	PS O5
CO1	2	1	-	1	-	1	-	-	1	-	1	-	3	1	1	1	1
CO2	1	2	-	1	-	1	-	-	1	-	1	-	3	1	1	1	1
CO3	2	2	-	1	-	1	-	-	1	-	1	-	3	1	1	1	3
CO4	2	3	-	1	-	1	-	-	1	-	1	-	3	1	1	1	1
CO5	3	3	-	1	-	1	-	-	1	-	1	-	3	1	2	1	2

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FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester I

Course Code: BPT – 104

Course Title: Sociology

Course Credit Hours:

Hrs. / Wk.			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
2	-	2	2	-	2	50	-	50

Course Outline: Sociology will introduce student to the basic sociology concepts, principles and social process, social institutions in relation to the individual, family and community and the various social factors affecting the family in rural and urban communities in India will be studied.

Sr No	Title of the Unit	Minimum number of Hours
1.	Introduction	07
2.	Social Factors in Health and disease situations	05
3.	Socialization	05
4.	Social Groups	04
5.	Family	03
6.	Community	04
7.	Culture and Health	04
8.	Social change	05
9.	Social Problems of disabled	06
10.	Social Security	03
11.	Social worker	03

Total hours (Theory): 38 Hrs

Total hours (Practical): 00 Hrs

Total hours: 38 Hrs

Unit Sr No	Course Content	Hours of Teaching
1	**Introduction**	**2 Hours**
1.1	Meaning- Definition and scope of sociology	
1.2	Its relation to Anthropology, Psychology, Social Psychology	
1.3	Methods of Sociological investigations- Case study, social survey, questionnaire, Interview and opinion poll methods	
1.4	Importance of its study with special reference to Health Care Professionals	
2	**Social Factors in Health and disease situations**	**2 Hours**
2.1	Meaning of social factors	
2.2	Role of social factors in health and illness	
3	**Socialization**	**2 Hours**
3.1	Meaning and nature of socialization	
3.2	Primary, Secondary and Anticipatory socialization	
3.3	Agencies of socialization	
4	**Social Groups**	**2 Hours**
4.1	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	
5	**Family**	**3 Hours**
5.1	The family, meaning and definitions	
5.2	Functions of types of family	
5.3	Changing family patterns	
5.4	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	**Community**	**3 Hours**
6.1	Rural community: Meaning and features –Health hazards of realities, health hazards to tribal community	
6.2	Urban community: Meaning and features- Health hazards of urbanities	

7	**Culture and Health**	**3 Hours**
7.1	Concept of Health	
7.2	Concept of Culture	
7.3	Culture and Health	
7.4	Culture and Health Disorders	
8	**Social change**	**7 Hours**
8.1	Meaning of social changes	
8.2	Factors of social changes	
8.3	Human adaptation and social change	
8.4	Social change and stress	
8.5	Social change and deviance	
8.6	Social change and health programmed	
8.7	The role of social planning in the improvement of health and rehabilitation	
9	**Social Problems of disabled**	**9 Hours**
9.1	Population explosion	
9.2	Poverty and unemployment	
9.3	Beggary	
9.4	Juvenile delinquency	
9.5	Prostitution	
9.6	Alcoholism	
9.7	Problems of women in employment	
9.8	Geriatric problems	
9.9	Problems of underprivileged	
10	**Social Security**	**2 Hours**
10.1	Social security and social legislation in relation to the disabled	
11	**Social worker**	**3 Hours**
11.1	Meaning of Social Work	
11.2	The role of a Medical Social Worker	

Course Outcomes (COs):

At the end of course, the students will be able to

CO1	Discuss the sociological concepts in relations to health, health care, and disorders
CO2	Explain social theories in relations to health and health care
CO3	Discuss biomedical and biopsychosocial health models
CO4	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
CO5	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
CO6	Analyze the social cause for activity limitations and participatory restrictions caused by various disorders

Recommended Text Books:

1. Sociology for Physiotherapists by Dibyendunarayana Bid, Latest edition, Jaypee Publication
2. Parter & Alder - Psychology & Sociology applied to medicine - W.B. Saunders
3. McGee - Sociology - Drydon Press Illinois
4. Kupuswamy - Social Changes in India - Vikas, Delhi

Recommended Reference Books:

1. An introduction to sociology by - Sachdeva and Bhushan, 32nd Edition, Kitab Mahal Publication
2. Textbook of Sociology for Physiotherapy Students by KP Neeraja, 1st Edition, Jaypee Publication
3. Indrani T K, Text Books of Sociology for Graduates Nurses and Physiotherapy Students, JP Brothers

CO-PO-PSO Matrix

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PS O4	PS O5
CO1	2	2	2	1	2	-	1	2	2	2	2	2	2	2	2	2	2
CO2	1	1	1	1	2	1	1	2	2	2	2	2	2	2	2	2	2
CO3	1	1	1	1	2	1	1	2	2	2	1	2	1	2	1	2	1
CO4	1	1	1	1	2	1	1	2	2	2	2	1	1	1	2	2	2
CO5	1	1	1	1	2	1	1	2	2	2	2	1	1	1	2	2	1
CO6	1	1	1	1	2	1	1	2	2	2	2	2	2	2	1	1	2

CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester I

Course Code: BPT – 105

Course Title: Introduction to Healthcare Delivery System in India

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
2	-	2	2	-	2	50	-	50

Course Outline: It provides the students a basic insight into the main features of Indian health care delivery system and how it compares with the other systems of the world.

Sr No	Title of the Unit	Minimum number of Hours
1.	Introduction to healthcare delivery system	09
2.	National Health Programme	03
3.	Introduction to AYUSH system of medicine	07
4.	Health scenario of India- past, present and future	02
5.	Demography & Vital Statistics	08
6.	Epidemiology	09

Total hours (Theory): 38 Hrs

Total hours (Practical): 00 Hrs

Total hours: 38 Hrs

Unit Sr No	Course Content	Hours of Teaching
1	**Introduction to healthcare delivery system**	**9 Hours**
1.1	Healthcare delivery system in India at primary, secondary and tertiary care	
1.2	Community participation in healthcare delivery system	
1.3	Health system in developed countries	
1.4	Private Sector	
1.5	National Health Mission	
1.6	National Health Policy	
1.7	Issues in Health Care Delivery System in India	
2	**National Health Programme**	**3 Hours**
2.1	Background objectives, action plan, targets, operations, achievements and constraints in various National Heath Programme	
3	**Introduction to AYUSH system of medicine**	**7 Hours**
3.1	Introduction to Ayurveda	
3.2	Naturopathy	
3.3	Unani	
3.4	Siddha	
3.5	Homeopathy	
3.6	Need for integration of various system of medicine	
4	**Health scenario of India- past, present and future**	**2 Hours**
5	**Demography & Vital Statistics**	**8 Hours**
5.1	Demography – its concept	
5.2	Vital events of life & its impact on demography	
5.3	Significance and recording of vital statistics	
5.4	Census & its impact on health policy	
6	**Epidemiology**	**9 Hours**

6.1	Principles of Epidemiology
6.2	Natural History of disease
6.3	Methods of Epidemiological studies
6.4	Epidemiology of communicable & non-communicable diseases, disease transmission, host defense immunizing agents, cold chain, immunization, disease monitoring and surveillance

Course Outcomes (COs):

At the end of the course, the students will be able to

CO1	Describe insight into the main features and different models of Indian healthcare delivery system
CO2	Demonstrate about the evaluation process of healthcare delivery system in India
CO3	Compares with other healthcare system of the World
CO4	Apply epidemiological concepts and principles in healthcare delivery system in India

Recommended Text Books:

1. Textbook of Preventive & Social Medicine - Dr. K. Park
2. Textbook of community medicine: B. K. Mahajan

Recommended Reference Books:

1. Population studies – Asha Bhendre
2. Effective communication methods – Asha Kaul
3. Hospital Administration – Tabish

CO-PO-PSO Matrix

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PS O4	PS O5
CO1	1	1	-	1	-	1	-	-	1	-	1	1	3	2	2	1	2
CO2	1	1	-	1	-	1	-	-	1	-	1	1	3	2	2	1	2
CO3	1	1	-	1	-	1	-	-	1	-	1	1	3	1	1	1	1
CO4	1	1	-	1	-	1	-	-	1	-	1	1	3	1	2	1	2

CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester I

Course Code: BPT – 106

Course Title: Basic computer and information science

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
1	2	3	1	1	2	50	50	100

Course Outline: 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.

Sr No	Title of the Unit	Minimum number of Hours
1.	Introduction to computer	03
2.	Input output devices	04
3.	Processor and memory	02
4.	Storage Devices	03
5.	Introduction of windows	06
6.	Introduction to MS-Word	09
7.	Introduction to Excel	09
8.	Introduction to power-point	09
9.	Introduction of Operating System	03
10.	Computer networks	03
11.	Internet and its Applications	06

Total hours (Theory): 19 Hrs

Total hours (Practical): 38 Hrs

Total hours: 57 Hrs

Unit Sr No	Course Content	Hours of Teaching
1	**Introduction to computer**	**3 Hours**
1.1	Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages	
2	**Input output devices**	**4 Hours**
2.1	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	**Processor and memory**	**2 Hours**
3.1	The Central Processing Unit (CPU), main memory	
4	**Storage Devices**	**3 Hours**
4.1	Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices	
5	**Introduction of windows**	**6 Hours**
5.1	History, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows (opening, closing, moving, resizing, minimizing and maximizing, etc.)	
6	**Introduction to MS-Word**	**9 Hours**
6.1	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	
7	**Introduction to Excel**	**9 Hours**
7.1	Introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs	
8	**Introduction to power-point**	**9 Hours**
8.1	Introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs	
9	**Introduction of Operating System**	**3 Hours**
9.1	Introduction, operating system concepts, types of operating system	

10	**Computer networks**	**3 Hours**
10.1	Introduction, types of networks (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network	
11	**Internet and its Applications**	**6 Hours**
11.1	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	

Course Outcomes (COs):

At the end of the course, the students will be able to

CO1	Know the parts of computer
CO2	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

CO-PO-PSO Matrix

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PS O4	PS O5
CO1	1	-	-	1	-	-	1	1	-	-	1	-	-	-	-	-	1
CO2	1	-	-	1	1	-	2	1	-	-	1	-	-	-	-	-	1
CO3	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2
CO4	1	2	1	1	2	2	3	3	2	2	2	3	2	3	2	2	2
CO5	2	2	2	2	2	2	3	3	2	2	2	2	3	2	2	3	2

CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester I

Course Code: BPT – 107

Course Title: English, Communication and soft skills

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
1	2	3	1	1	2	50	50	100

Course Outline: 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.

Sr No	Title of the Unit	Minimum number of Hours
1.	Basic Language Skills	10
2.	Business Communication Skills	12
3.	Communication and its Methods	35

Total hours (Theory): 19 Hrs

Total hours (Practical): 38 Hrs

Total hours: 57 Hrs

Unit Sr No	Course Content	Hours of Teaching
1	**Basic Language Skills**	**10 Hours**
1.1	Basic language skills Grammar and Usage	
2	**Business Communication Skills**	**12 Hours**
2.1	Business communication skills with focus on speaking - Conversations, discussions, dialogues, short presentations, pronunciation	
3	**Communication and its Methods**	**35 Hours**
3.1	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	
3.2	Basic concepts & principles of good communication	
3.3	Special characteristics of health communication	
3.4	Types & process of communication – verbal, non-verbal and written communication. Upward, downward and lateral communication	
3.5	Therapeutic communication: empathy versus sympathy	
3.6	Communication methods for teaching and learning	
3.7	Communication methods for patient education	
3.8	Barriers of communication & how to overcome	

Course Outcomes (COs):

At the end of the course, the students will 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

CO-PO-PSO Matrix

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PS O4	PS O5
CO1	1	1	-	1	-	1	-	-	1	-	1	1	3	2	-	1	-

CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester I

Course Code: BPT – 108

Course Title: Introduction to Yoga- Basic theory, science and techniques

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
1	2	3	1	1	2	50	50	100

Course Outline: It provides the students to covers fundamental yoga principles, including its history and philosophy, basic anatomy related to yoga practice, and essential techniques such as asanas (postures), pranayama (breath control), and meditation. They will engage in practical sessions to develop a foundational understanding of both the physical and mental aspects of yoga.

Sr No	Title of the Unit	Minimum number of Hours
1.	Foundations of Yoga	04
2.	Yoga and Health	05
3.	Physiological effects of Yoga practices	04
4.	Sukshma Vyayama /Sithilikarna Vyayama and Surya Namaskar	06
5.	Yogic kriyas	06
6.	Yogasanas	18
7.	Pranayamas	09
8.	Relaxation Techniques	05

Total hours (Theory): 19 Hrs

Total hours (Practical): 38 Hrs

Total hours: 57 Hrs

Unit Sr No	Course Content	Hours of Teaching
1	**Foundations of Yoga**	**4 Hours**
1.1	Introduction to Yoga and its philosophy	
1.2	Brief history, development of Yoga	
1.3	Philosophical foundations of Yoga	
1.4	Streams & types of Yoga	
2	**Yoga and Health**	**5 Hours**
2.1	Concept of body in yoga – Panchakosha theory	
2.2	Concept of Health and Disease in yoga	
2.3	Stress management through yoga	
2.4	Disease prevention and promotion of positive health through yoga	
3	**Physiological effects of Yoga practices**	**4 Hours**
3.1	Physiological effects of Shat kriyas	
3.2	Physiological effects of Asanas	
3.3	Physiological effects of Pranayamas	
3.4	Physiological effects of Relaxation techniques and Meditation	
4	**Sukshma Vyayama /Sithilikarna Vyayama and Surya Namaskar**	**6 Hours**
4.1	a. Loosening exercises of each part of the body particularly of the joints b. 12 step Surya namaskar with prayer and specific mantras	
5	**Yogic kriyas**	**6 Hours**
5.1	a. Neti (Jala Neti, Sutra Neti) b. Dhauti (Vamana Dhauti, Vastra Dhauti) c. Trataka d. Shankaprakshalana (Laghu & Deergha)	
6	**Yogasanas**	**18 Hours**
6.1	**Standing postures** i. Tadasana (Upward stretch posture)	

	ii. Ardha Chakrasana (Half wheel posture) iii. Ardha Katicakrasana (Half lumber wheel posture) iv. Utkatasana (Chair posture) v. Pada Hastasana (Hand to toes posture) vi. Trikonasana (Triangle posture) vii. Parshva Konasana (Side angle posture) viii. Garudasana (Eagle posture) ix. Vrikshasana (Tree posture)
6.2	**Prone positions** i. Makarasana (Crocodile posture) ii. Bhujangasana (Cobra posture) iii. Salabhasana (Locust posture) iv. Dhanurasana (Bow posture) v. Naukasana (Boat posture) vi. Marjalasana (Cat posture)
6.3	**Supine postures** i. Ardha halasana/ Uttana Padasana ii. Sarvangasana (All limb posture) iii. Pawana muktasana (Wind releasing posture) iv. Matsyasana (Fish posture) v. Halasana (Plough posture) vi. Chakrasana (Wheel posture) vii. Setu Bandhasana (Bridge posture) viii. Shavasana (Corpse posture)
6.4	**Sitting postures** i. Parvatasana (Mountain posture) ii. Bhadrasana (Gracious posture) iii. Vajrasana (Adamantine posture) iv. Paschimottanasana (Back stretching posture) v. Janushirasana (Head to knee posture) vi. Simhasana (Lion posture) vii. Gomukhasana (Cow head posture) viii. Ushtrasana (Camel posture)

	ix. Ardha Matsyendrasana (Half matsyendra spine twist posture) x. Vakrasana (Spinal twist posture) xi. Kurmasana (Turtle posture) xii. Shashankasana (Rabbit posture) xiii. Mandukasana (Frog Posture)	
6.5	**Meditative postures and Meditation techniques** i. Siddhasana (Accomplished pose) ii. Padmasana (Lotus posture) iii. Samasana iv. Swastikasana (Auspicious posture)	
7	**Pranayamas**	**9 Hours**
7.1	a. The practice of correct breathing and Yogic deep breathing b. Kapalabhati c. Bhastrika d. Sitali e. Sitkari f. Sadanta g. Ujjayi h. Surya Bhedana i. Chandra Bhedana j. Anuloma-Viloma/Nadishodana k. Bhramari	
8	**Relaxation Techniques**	**5 Hours**
8.1	a. Shavasana b. Yoga Nidra	

Course Outcomes (COs):

At the end of the course, the students will be able to

CO1	Understand the conceptual aspect of yoga and other Systems of Medicine
CO2	Appreciate the role of yoga in maintaining personal and societal health
CO3	Perform basic asanas and pranayama
CO4	Have an understanding of kriyas

Recommended Text Books:

1. Anatomy and Physiology of Yogic Practices – M.M Ghore, Kaivalyadhama, Lonavala, Pune
2. Lights on yoga by BKS Iyenngar
3. Lights on Pranayama by BKS Iyenngar

Recommended Reference Books:

1. Yoga Its Basis and Application by Dr.Nagendra H.R.
2. Asana, pranayama, mudra bandha by Dr. Nagendra H.R

CO-PO-PSO Matrix

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PS O4	PS O5
CO1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
CO2	1	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	3
CO3	2	2	2	2	2	2	1	-	1	2	2	2	2	2	2	2	2
CO4	1	1	1	1	1	1	-	-	1	1	1	1	1	1	1	1	1

CHARUTAR VIDYA MANDAL UNIVERSITY

FACULTY OF PHYSIOTHERAPY

RITA A. PATEL INSTITUTE OF PHYSIOTHERAPY

BPT - Semester I

Course Code: BPT – 109

Course Title: Community orientation and clinical visit

Course Credit Hours:

Hrs. / Wk			Credits			Marks		Total Marks
L	P	T	L	P	T	Theory	Practical	
-	6	6	-	2	2	-	100	100

Course Outline: The objective of this 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.

1. The community orientation and clinical visit will include visit to the entire chain of healthcare delivery system -Sub center, PHC, CHC, SDH, DH and Medical college, private hospitals, dispensaries and clinics.
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.
3. Clinical visit to their respective professional department within the hospital.

Course Outcomes (COs): At the end of the course, the students will be able to

CO1	Gain a comprehensive overview of the entire healthcare delivery chain, including sub-centers, PHCs, CHCs, SDHs, DHs, medical colleges, private hospitals, dispensaries, and clinics
CO2	Demonstrate enhanced receptiveness to learning through participation in group activities, interactive discussions, role plays, and clinical bedside demonstrations
CO3	Foster teamwork and communication abilities through collaborative activities, preparing students for interdisciplinary collaboration in their future careers

CO-PO-PSO Matrix

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PS O4	PS O5
CO1	2	2	2	3	3	2	2	1	2	2	1	2	3	3	3	3	1
CO2	2	2	2	3	3	2	2	1	2	2	1	2	3	3	3	3	1
CO3	2	2	2	3	3	2	2	1	2	2	1	2	3	3	3	3	1