

**EKLAVYA**  
UNIVERSITY

ज्ञानप्राप्तये लक्ष्यसन्धानम्

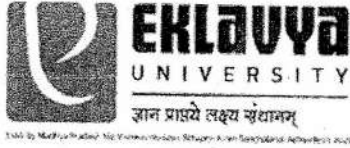
Sagar Road, Damoh (M.P.), Bharat

**Eklavya University, Damoh (MP)**

**B.P.T. I<sup>st</sup> Year**

**Syllabus 2022-23**

**School of Nursing & Paramedical Science**



School of Nursing and Paramedical  
Sciences

**SCHEME OF EXAMINATION: BACHELOR OF PHYSIOTHERAPY (B. P. Th.)**  
**First Year B. P. Th. Examination**

S.No.	Subject Code	Subject	Internal		University Examination			Total
			Theory	Practical	Theory	External Viva	External Practical	
1	BPHSI20Y101	Human Anatomy	20	20	100	20	40	200
2	BPHSI20Y102	Human Physiology	20	20	100	20	40	200
3	BPHSI20Y103	Fundamental of Physics, Biomechanics & Biomechanical Modalities	20	20	100	20	40	200
4	BPHSI20Y104	Fundamental of Medical Electronics & principles of Bioelectrical Modalities	20	20	100	20	40	200
5	BPHSI20Y105	Psychology & Sociology	20	-	80	-	-	100
<b>Total Marks.</b>								<b>900</b>

N.B.- Viva marks will be added in theory marks along with internal assessment theory; candidate have to get min. 50% marks in theory and viva collectively for passing the examination.



School of Nursing and Paramedical  
Sciences

## DETAILED CURRICULUM



School of Nursing and Paramedical  
Sciences

Department of Paramedical

SYLLABUS

BPT

4½ YEAR DEGREE COURSE

Year	BPT 1 <sup>st</sup> Year
Subject	Human Anatomy
Time	200(140 Theory+60 Practical) hrs

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<b>rse code</b>	<b>Human Anatomy</b>	
<b>BPHSI20Y101</b>		
<b>Pre-requisite</b>	Nil	<b>Syllabus version</b>
<b>Course Objectives:</b>		
<ol style="list-style-type: none"> <li>1. Understanding of gross anatomy of various body parts.</li> <li>2. Application of knowledge of anatomy to learn evaluation and application of physical therapy.</li> <li>3. Major emphasis of learning is towards Musculo-skeletal, cardio-respiratory and nervous system.</li> </ol>		
<b>Course Outcome:</b>		
<p>On completion of this subject, the students will be able to</p> <ol style="list-style-type: none"> <li>1. Identify all gross anatomical structures, particular emphasis will be placed on description of bones, joints, muscles, brain, cardio-pulmonary and nervous systems as these relate to the application of Physiotherapy.</li> <li>2. Demonstrate knowledge in human anatomy as in necessary for the study and practice of physiotherapy.</li> </ol>		
<b>Student Learning Outcomes (SLO):</b>		
<b>Unit – 1</b>		<b>28</b>
<p>General Anatomy: Introduction to Anatomy, terms and terminology. Regions of Body, cavities and Systems outline. Surface anatomy – Musculo-skeletal and cardiopulmonary, Cell Structure and function of cell organelles (Brief outline only). Connective tissue &amp; its modification, tendons, membranes, Special connective tissue. Bone structure, blood supply, growth, ossification, and classification. Muscle classification, structure and functional aspect. Nerve – structure, classification, microscopy with examples. Neurons, classification with examples. Simple reflex arc. Parts of a typical spinal curve/Dermatome. Joints – classification, structures of joints, movements, range, limiting factors, stability, blood supply, nerve supply, dislocations and applied anatomy. Circulatory system – major arteries and veins of the body, structure of blood vessels. Lymphoid system – circulation + function, lymphoid organs- and their structure &amp; functions.</p> <p>Upper extremity: Bony architecture, Joints – structure, range of movement, Muscles – origin, insertion, actions, nerve supply, Major nerves – course,</p>		

branches and implications of nerve injuries, Development of limb bones, muscles and anomalies, Radiographic identification of bone and joints.	
<b>Unit - 2</b>	<b>28</b>
<p>Lower Extremity: Bony architecture, Joints – structure, range of movement, Muscles – origin, insertion, actions, nerve supply. Major nerves – course, branches and implications of nerve injuries) Development of limb bones, muscles and anomalies. Radiographic identification of bone and joints.</p> <p>Spine: Back muscles - Superficial layer, Deep muscles of back, their origin, insertion, action and nerve supply. Vertebral column – Structure &amp; Development, Structure &amp; Joints of vertebra. Radiographic identification of bone and joints.</p>	
<b>Unit - 3</b>	<b>28</b>
<p>Thorax: Thoracic cage, Pleural cavities &amp; pleura, Lungs and respiratory tree, Heart and great vessels, Diaphragm.</p> <p>Head and neck: Cranium, Facial Muscles, Structure of eyeball in brief and extra ocular muscles, visual pathway. Ear and auditory pathway. Triangles of Neck, boundaries and contents. Tongue – parts ,extrinsic and intrinsic muscles, motor and sensory nerves, gustatory pathway. Pharynx, Larynx.</p>	
<b>Unit - 4</b>	<b>28</b>
<p>CNS: Central nervous system – disposition, parts and functions. Cerebrum, Cerebellum, Midbrain &amp; brain stem, Blood supply of brain &amp; its applied anatomy, Spinal cord- anatomy, blood supply, nerve pathways, Pyramidal, extra pyramidal system, Thalamus, hypothalamus, Ventricles of brain, CSF circulation, Development of nervous system &amp; defects (Brief Description). Cranial nerves – special emphasis on V, VII, X, XI, XII (course, distribution and palsies). Sympathetic nervous system, its parts and components (Brief Description). Parasympathetic nervous system.</p>	
<b>Unit - 5</b>	<b>28</b>
<p>Endocrine - system – Pituitary, Thyroid, parathyroid (Brief Description). Embryology in brief of neuromuscular tissue. Abdomen (Brief descriptions only): Boundaries , Muscles of abdominal wall, Division of Abdominal cavity, Pouch of Douglus, Morrisons pouch, Pelvis.Pelvic floor, innervations, Bony Pelvis, Digestive system (Liver &amp; pancreas, Alimentary canal),Urinary system –</p>	

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Kidney, Ureter, bladder, urethra, Genital system – Male and Female Kinesiology, Basic Concepts, Muscular system, Joints, Machinery, Musculoskeletal system, Principles of Motion. Principles of force and work, Basics of the development of motor skill.	
<b># Mode: Flipped Class Room, Case Discussion, Lectures.</b>	
<b>Reference Books:-</b>	
1. Chaurasia, B D Human Anatomy: Regional and CBS, New Delhi Latest 3V	
2. Chaurasia, B D Human Osteology CBS, New Delhi Latest	
3. Singh, Inderbir Text Book of Anatomy: With Color Atlas Jaypee, New Delhi Latest 3V	
4. Singh, Inderbir Text Book of Neuroanatomy Jaypee, New Delhi Latest	
<b>Text Books:-</b>	
5. Singh, Inderbir Text Book of Human Histology Jaypee, New Delhi Latest	
6. Singh, Inderbir Text Book of Human Osteology Jaypee, New Delhi Latest	
7. Garg, Krishna Text Book Histology CBS, New Delhi Latest	
8. Singh, Inderbir Multiple Choice Questions in Anatomy Jaypee, New Delhi Latest	
9. Datta, A.K. Essentials of Human Anatomy: Neuroanatomy	
<b>LIST OF PRACTICAL -</b>	<b>60</b>
1. Learning of surface landmarks with special emphasis on bones, joints, muscles, and nerves.	
2. The learning of anatomy is by demonstration only through dissected parts, slides, models, charts, etc. Demonstration of dissected parts (upper extremity, lower extremity, thoracic & abdominal viscera, face and brain) Demonstration of skeleton articulated and disarticulated.	
3. During the training more emphasis will be given on the study of bones, muscles, joints, nerve supply of the limbs.	

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**Department of Paramedical**

**SYLLABUS**

**BPT**

**4½ YEAR DEGREE COURSE**

<b>Year</b>	<b>BPT 1<sup>st</sup> Year</b>
<b>Subject</b>	<b>Human Physiology</b>
<b>Time</b>	<b>200 hrs Theory (140 theory + 60 Practical)</b>

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<b>Course code</b>	<b>Human Physiology</b>	
<b>BPHSI20Y102</b>		
<b>Pre-requisite</b>	Nil	<b>Syllabus version</b>
<b>Course Objectives:</b>		
<ol style="list-style-type: none"> <li>1. To understand the Physiological functions of human body</li> <li>2. To understand the application of physiological functions &amp; physiology of exercise in relation to physical therapy</li> <li>3. Major area of learning is cardio-respiratory, Musculo-skeletal and nervous system.</li> <li>4. Note: Group discussions, seminars and tutorial will be on the topics covered in didactic lectures</li> </ol>		
<b>Course Outcome:</b>		
<ol style="list-style-type: none"> <li>1. Student will understand the physiological bases of endocrine system and function in relation to clinical judgment.</li> <li>2. Student will understand the physiology of systems and physiological changes in body.</li> <li>3. Student will illustrate about the human physiology of respiratory system diagrams.</li> <li>4. Student will know the theoretical and practical knowledge of CVS and GIT system.</li> <li>5. Student will be able to demonstrate an increased depth and breadth of patient care in the prehospital setting by applying principles from evidence-based research in emergency medicine.</li> </ol>		
<b>Student Learning Outcomes (SLO):</b>		
<ol style="list-style-type: none"> <li>1. At the end of the course, the candidate will-</li> <li>2. Acquire the knowledge of the relative contribution of each organ system in maintenance of the milieu interior [Homeostasis].</li> <li>3. Be able to describe physiological functions of various systems, with special reference to Musculo-skeletal, Cardio-respiratory, and alterations in function with aging.</li> </ol>		

4. Analyze physiological responses & adaptation to environmental stresses- with special emphasis on physical activity & temperature.
5. Acquire the skill of basic clinical examination, with special emphasis to Cardiovascular and Respiratory system, & Exercise tolerance/Ergography

**Unit – 1**

**28**

**GENERAL PHYSIOLOGY:** Structure of cell membrane. Transport across cell membrane. Functional morphology of the cell. Intercellular communication. Homeostasis

**CARDIOVASCULAR SYSTEM:** General introduction of cardiovascular systems. Structure and properties of Cardiac muscle. Dynamics of blood & lymph flow. Anatomical, biophysical consideration of arterial, arteriolar & capillary venous level, Lymphatic circulation. Cardiac cycle and Heart sounds, Mechanical events of Cardiac cycle, Cardiac output, its regulation. Origin and spread of cardiac excitation. Basic idea of Electrocardiogram and Interpretation of normal Electrocardiogram. Cardiac output and cardiac failure. Venous return, Heart rate and its regulation. Structure and organization of vascular tree. Arterial blood pressure and pathophysiology of Hypertension. Characteristic of Coronary circulation and pathophysiology of Coronary artery disease. Capillary circulation and physiological basis of Edema. Local & systemic regulatory mechanisms of CVS, humeral & neural. Patho-physiology of Shock. Cerebral, coronary, splanchnic, skin, Placental & Fetal circulation.

**Unit – 2**

**28**

**RESPIRATORY SYSTEM** Functional anatomy of Respiratory System , Physiological anatomy of lungs, mechanics of respiration. Mechanics of breathing: Mechanism of inspiration and Expiration, intra-pleural and intra-alveolar pressures, Compliance, Surfactant, Air-way resistance and work of breathing. Pulmonary circulation, Respiratory membrane and Gas exchange in lungs. Composition of gases and Partial pressures. Oxygen and Carbon-dioxide transport. Other function of respiratory system. Lung Volumes, Capacities and Lung function tests. Neural and Chemical control of breathing. Regulation of respiratory activity, non-chemical influences on respiratory activity. Physio-clinical aspects of Dyspnoea, Apnoea, Asphyxia, Hypoxia, Cyanosis, Breath holding, high and Low

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atmospheric pressures.

**CARDIO RESPIRATORY ADJUSTMENTS IN HEALTH & DISEASE:** Exercise, high altitude, deep sea diving. Hypoxia, hypercapnia, hypocapnia, oxygen treatment. Asthma, emphysema, artificial respiration.

**BLOOD:** W.B.C., R.B.C., Platelets formation & functions. Plasma, Blood Groups. Haemostatic, Immunity.

**RENAL SYSTEM :** Functions of Kidney , Formation of Urine , Glomerular filtration rate, clearance, Tubular function. Water excretion, concentration of urine-regulation of Na, Cl, K excretion. Physiology of urinary bladder, Micturition- Neurogenic bladder.

**Unit - 3**

**28**

**DIGESTIVE SYSTEM :** Digestion & absorption of nutrients. Gastrointestinal secretions & their regulation. Functions of (a) Saliva, (b) Gastric juice, (c) Pancreatic juice (d) Succus entericus,

(e) Bile. Movements of G.I.T. Functions of Liver & Exocrine Pancreas.

**NERVE - MUSCLE AND SYNAPTIC & JUNCTION TRANSMISSION:** Nerve - General Concept. Nerve cell - structure. Genesis of resting membrane potential & Action potential. Their ionic basis, All or None phenomenon. Ionic basis of nerve conduction. Classification & types of nerve fibre. Mixed nerves & compound action potential. Concept of nerve injury & Wallerian degeneration. Muscle properties and functions. Electric & Mechanical responses & their basis. Concept of isometric & isotonic muscle contraction. Electrical events in postsynaptic neurons. Inhibition & facilitation at synapses. Chemical transmission of synaptic activity. Principal neurotransmitter system. Neuromuscular junction, structure & events occurring during excitation.

**Unit - 4**

**28**

**NERVOUS SYSTEM (descriptive):** Organization of Nervous system. Neuron and Neuralgia. Synapse: Properties and Synaptic transmission. Reflex arc, its components, properties, type and neurological impairments. General sensations and their properties. Ascending tracts of the Spinal cord and effects of their lesions. Pain and physiological Analgesia. Motor neurons, Descending tracts and their applied aspects Regulation of Muscle Tone by Spinal and Supra-spinal mechanism. Function of Brain -stem, Cerebellum, Basal Ganglia and Motor cortex. Control of Voluntary movement. Regulation of posture and equilibrium, vestibular apparatus. Broad functions of Thalamus, Hypothalamus, Major

lobes of Cerebral cortex and Ascending Reticular. Activation System. Limbic System. Learning, memory, speech and conditional reflexes.: Reflexes, monosynaptic, polysynaptic, withdrawal reflex. Properties of reflexes. Sense organ, receptors, electrical & chemical events in receptors. Ionic basis of excitation. Sensory pathways for touch, temperature, pain, proprioception, others. Control of tone & posture: Integration at spinal, brain stem, cerebellar, basal ganglion levels, along with their functions & clinical aspects. Autonomic nervous system & Hypothalamus. . Functioning of Autonomic Nervous System with special reference to micturition, defecation and labour. Higher neural regulation of ANS.

**HIGHER FUNCTIONS OF NERVOUS SYSTEM:** Learning & memory, neocortex. Limbic functions, sexual behaviour, fear & range, motivation.

**SPECIAL SENSES:** Functional anatomy of the Eye. Optics of Vision. Retinal Function. Visual Pathways. Mechanism of Hearing. Sensation of Taste and Smell.

**Unit – 5**

**28**

**ENDOCRINE:** Role of Hypothalamus as an endocrine gland.

Functions and hypo & hyper secretion of hormones of: Pituitary, Thyroid, Parathyroid, Adrenal, Endocrine part of pancreas.

**REPRODUCTIVE SYSTEM:** Male & female reproductive system. Spermatogenesis, Functions of Testosterone. Ovarian and Menstrual Cycle and their hormonal control. Hormones of Ovary and their functions. Physiological basis of Fertilization, Implantation, Pregnancy, Parturition and Lactation. Contraception.

**EXERCISE PHYSIOLOGY:** Effects of acute & chronic exercises. Oxygen/CO<sub>2</sub> transport – O<sub>2</sub> debt. Effects of Exercises on muscle strength, power, endurance, B.M.R., R.Q.- hormonal & metabolic effects respiratory & cardiac conditioning. Aging, Training, fatigue & recovery. Fitness- related to age, gender, & body type.

**SKIN AND BODY TEMPERATURE REGULATION:** Functional anatomy of the Skin and its function. Different mechanisms involved in body temperature regulation. Physiological basis of Pyrexia and Hypothermia.

**# Mode: Flipped Class Room, Case Discussion, Lectures.**

**Reference Books :-**

1. Chatterji, C. C., Human Physiology Medical Allied ,
2. Keele, Cyril A, Samson Wright's Applied Physiology, Oxford University Press.

**Text Books:-**

3. Bijlani, R L, Understanding Medical Physiology, Oxford University Press
4. Guyton, A.C. and Hall, J. E., Textbook of Medical Physiology, W.B.Saunders, Singapore

**LIST OF PRACTICALS -**

60

1. Examination of pulse, B.P., respiratory rate, & measure study the effect of posture & exercise. Recording of arterial blood pressure – effects of change in posture & exercise on A.B.P

2. Stethography

- Effect of deglutition.
- Effect of voluntary hyperventilation
- Effect of exercise

Spirometry to measure various lung capacities & volumes, Respiratory rate, tidal volume, VC, timed VC, IRV, IC, ERV, EC on Spirometry (demonstration only)

- Spirometry : Lung volumes and capacities.
- Mosso's finger ergography and bicycle ergography
- Perimetry
- Clinical examination of

1. Respiratory system.

2. Cardiovascular system.

3. Central Nervous system.

4. Special senses.

5. Estimate of Haemoglobin, T.R.B.C., T.W.B.C. count (demonstration only)

, Study of Graphs

6. Blood indices, Blood grouping, Bleeding & Clotting time (demonstration only]

7. Skeletal muscles

- Simple muscle twitch
- Effect of increasing strength on SMT.
- Effect of increasing load on SMT.
- Effect of pre load & after load (Starling's law).
- Effect of temperature.
- Effect of two successive stimuli.
- Effect of fatigue.
- Effect of multiple stimuli & tetanus.

6. Cardiac muscles

- Simple myo-cardiogram.
- Effect of temperature on the myo-cardiogram.
- Effect of drugs.
- All or none law.
- Staircase phenomenon.

7. Physiology Fitness

- Breath holding
- mercury column test,
- Cardiac efficiency test – Harvard step test – Master step test

**PRACTICAL EXAMINATION**

Students will be assessed by viva based upon learning in theory.  
Demonstration of measurements of pulse, BP

**Department of Paramedical**

**SYLLABUS**

**Bachelor of Physiotherapy  
BPT**

**4½ YEAR DEGREE COURSE**

<b>Year</b>	<b>Bachelor of Physiotherapy 1st year</b>
<b>Subject</b>	<b>FUNDAMENTALS OF PHYSICS, BIOMECHANICS &amp; EXERCISE THERAPY</b>
<b>Time</b>	<b>160 (100 Theory+60 Practical) hrs</b>

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<b>Course code</b>	<b>Fundamentals Of Physics, Biomechanics &amp; Exercise Therapy</b>	
<b>BPHSI20Y103</b>		
<b>Pre-requisite</b>	Nil	<b>Syllabus version</b>
<b>Course Objectives:</b>		
<ol style="list-style-type: none"> <li>1. To demonstrate passive movements in terms of various Anatomical planes.</li> <li>2. To demonstrate various starting and derived positions.</li> <li>3. Acquire the skill of application of various massage manipulations and describe the Physiological effects, therapeutic use, merits /demerits of the same.</li> <li>4. Acquire a skill of assessment of sensations, superficial and deep reflexes, pulse rate/ Blood pressure, Chest expansion/respiratory rate, and limb length/girth measurement on Models.</li> <li>5. To demonstrate and also acquire the skill of relaxation.</li> </ol>		
<b>Course Outcome:</b>		
<ol style="list-style-type: none"> <li>1. Students will be able to describe the skill and usefulness of group and recreational activities-and will be able to demonstrate general fitness exercises used in Physical Training.</li> <li>2. Students will be able to describe and also acquire the skill of use of various tools of the Therapeutic gymnasium.</li> <li>3. Students will be able to demonstrate passive movements in terms of various Anatomical planes.</li> <li>4. Students will be able to demonstrate various starting and derived positions</li> </ol>		




**Student Learning Outcomes (SLO):**

At the end of the course, the candidate will-

1. To define the various terms used in mechanics, Biomechanics and Kinesiology.
2. Recall the basic principles of Physics related to mechanics of movement /motion & will be able to understand the application of such principles to the simple equipment designs, and their efficacy in therapeutic gymnasium and various starting positions used in therapeutics.
3. To describe and also acquire the skill of use of various tools of the Therapeutic gymnasium.

**Unit - 1****20**

Mechanics - Definition of mechanics and Biomechanics. Force - Definition, diagrammatic representation, classification of forces, concurrent, coplanar and co-linear forces, composition and resolution of forces, angle of pulls of muscle. Momentum - principles, and practical application, Friction.

**Unit - 2****20**

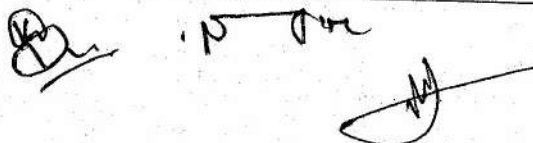
Gravity - Definition, line of gravity, Centre of gravity, Equilibrium - Supporting base, types, and equilibrium in static and dynamic state. Levers - Definition, function, classification and application of levers in physiotherapy & order of levers with example of lever in human body. Pulleys - system of pulleys, types and application

**Unit - 3****20**

Elasticity - Definition, stress, strain, HOOKE'S Law: Springs - properties of springs, springs in series and parallel, elastic materials in use. Aims and scope of various biomechanical modalities - shoulder wheel, shoulder ladder, shoulder pulleys, pronator-supinator instrument, static cycle, rowing machine, ankle exerciser, balancing board, springs, weights. Normal Posture - definition & description, static and dynamic, alignments of various joints, centre of gravity, planes & muscular moments, and Analysis of posture

**Unit - 4****20**

Movements - Anatomical definition and description, Movements and exercise as therapeutic modality and their effects, Physiological reaction of exercise. Traction - Rationale, Technique, indications & contra-indications. Normal Gait - definition &





description, alignments, centre of gravity during gait cycle, planes & muscle acting mechanisms, pattern, characteristics Normal gait cycle, time & distance parameters, & determinants of Gait

**Unit – 5**

**20**

Starting positions - Description and muscle work, Importance of fundamental and derived types, Effects and uses of individual positions. Soft tissue manipulation - History, definition, types and their rationale, general effects, local effects of individual manipulation (physiological effects) and uses, contra-indications and techniques of application.

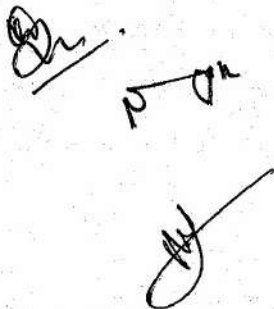
**# Mode: Flipped Class Room, Case Discussion, Lectures.**

**Reference Books:-**

1. Hollis, M. and Cook; P.F., Practical Exercise Therapy CBS, New Delhi , Latest Edition
2. Gardiner, Dena; Principles of Exercise Therapy CBS, New Delhi , Latest Edition.

**Text Books:-**

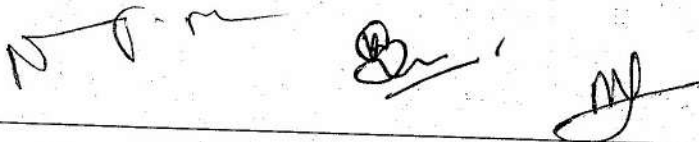
3. Lippert, Lynn; Clinical Kinesiology for Physical Therapy, Jaypee New Delhi , Latest Edition
4. Pagliarulo, M.A.; Introduction to Physical Therapy Mosby, London , Latest Edition
5. Jones, Human Movement Explained; Butterworth Heine , Latest Edition

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1. Demonstration of Biomechanical principles
2. Study of structure,function and application of various biomechanical modalities-shoulder wheel,shoulder ladder,shoulder pulleys,pronator –supinator instruments  
,static cycle,rowin machine,ankle exerciser,balancing board,springs,eights,etc.
3. Study of structures ,function and application of suspension ,demonstration and practice of
  - Soft tissue manipulative techniques
  - Normal gait and posture
  - Starting and derived position
  - Spinal mechanical traction

**PRACTICAL EXAMINATION**

Students will be assessed by viva based upon learning in theory, demonstrations of various biomechanical modalities, suspensions, and manipulative techniques learned.

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School of Nursing and Paramedical  
Sciences

Department of Paramedical

SYLLABUS

Bachelor of Physiotherapy (BPT)  
4½ YEAR DEGREE COURSE

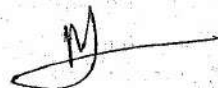
Year	BPT I <sup>st</sup> Year
Subject	Fundamental of Medical Electronics & Principles of Bioelectrical Modalities
Time	160 (100 theory + 60 practical) hrs

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<b>Course code</b>	<b>Fundamental of Medical Electronics &amp; Principles of Bioelectrical Modalities</b>	
<b>BPHSI20Y104</b>		
<b>Pre-requisite</b>	Nil	<b>Syllabus version</b>
<b>Course Objectives:</b>		
<ol style="list-style-type: none"> <li>1. This course will enable the student to understand the basic principles of Physics ,</li> <li>2. Biomechanics &amp; exercise therapy, basic principles and application of soft tissue manipulation</li> </ol>		
<b>Course Outcome:</b>		
<p>Students will be able to</p> <ol style="list-style-type: none"> <li>1. students will be able to know the principles, technique and effects of electrotherapy as a therapeutic modality in the restoration of physical function in conditions.</li> <li>2. students will be able to list the indications and contraindications of various types of electrotherapy, demonstrate different techniques and describe their effects.</li> <li>3. students will be able to utilize Contemporary and recent methods and to select the most appropriate method to moderate and alleviate pain for patients.</li> </ol>		
<b>Student Learning Outcomes (SLO):</b>		
<ol style="list-style-type: none"> <li>1. Students will be able to demonstrate their ability to perform an appropriate primary/initial assessment of the patient in the pre hospital setting.</li> <li>2. Students will be aware of the construction, Biophysical principles and effects, dangers, safety measures, judicial use, appropriate methods of application, contraindications of the various High frequency equipments.</li> <li>3. Students will be able to practice towards Scientific excellence</li> <li>4. Students will be able to perform an appropriate secondary/focused history and physical exam for patients with medical complaints or signs and symptoms in the pre-hospital setting.</li> </ol>		

P T M





<b>Unit - 1</b>	<b>20</b>
<p>DC Currents -Modern concept of electricity: fundamental electric charges (proton and electron), bound and free electrons, free electrons and current, static electric charge, charging of an object, potential and capacitance, potential difference and EMF. A. C. currents: Sinusoidal wave form, frequency, wavelength, Amplitude and phase of a sine wave, Average &amp; RMS value of a sine wave. Quantity of electricity, magnitude of current, conductors and insulators, resistance of conductor and Ohm's law, resistances in series and parallel. Capacitors: Electric field around a capacitor, charging and discharging of capacitor, types of capacitor with application of each in Physiotherapy department.</p>	
<b>Unit - 2</b>	<b>20</b>
<p>Rheostat: series and shunt Rheostat with application of each in the Physiotherapy department. Effects of electric Current: Thermal effect, chemical effect (ionization) and magnetic effect. Electric shock, Earth shock, causes and its prevention. Magnetism: Magnetic - non-magnetic substances and their properties, properties of magnet, molecular theory, poles of magnet and its properties, magnetic lines of force and their properties, Electromagnetism, magnetic effects of electric current, Electromagnetic induction, Lenz's law, Inductor and Inductance, types of inductor, reactance and impedance Thermionic Valves: Thermionic emission, Diode and Triode valves and their characteristics, Construction and application of Cathode Ray Oscilloscope.</p>	
<b>Unit - 3</b>	<b>20</b>
<p>Semiconductor Devices: Intrinsic and extrinsic semiconductors, advantages of diode and transistors devices.</p> <p>Biasing of Diode and their characteristics, Light Emitting Diodes, integrated circuits, Advantage of semiconductor devices over thermionic valve. Electronic Circuits: Rectifiers, Wheat stone bridge &amp; smoothing circuits, Oscillators and its types A.C. AND D.C. meters: Functions and applications of Ammeter and volt meters, Ohmmeters. Introduction to Therapeutic Energies - Thermal, Mechanical, Electrical, Electromagnetic and magnetic - Definition, description, Electromagnetic spectrum, physiological effects, pathological effects and dangers. Medical</p>	

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Instrumentation For Physical Therapy: Brief description of generation, circuit diagrams and testing.	
<b>Unit – 4</b>	<b>20</b>
Low frequency currents, Direct currents 8. Medium frequency currents Short wave Diathermy-continuous and pulsed Microwave Diathermy. Ultrasound.	
<b>Unit – 5</b>	<b>20</b>
Actino -therapy – Infrared- Types of generators, UVR-generators, types, dosimeter and LASER- Productions & instrumentation, classification and physiological effects.	
<b># Mode: Flipped Class Room, Case Discussion, Lectures.</b>	
<b>Reference Books:-</b>	
1. Froster, A. and Palastanga, N.; Clayton's Electrotherapy: Theory and Practice AITBS, Delhi	
2. Jhon, Low and Ann, Reed; Electrotherapy Explained: Principles Butterworth Heine, Oxford	
<b>Text Books:-</b>	
1. Nelson, R.M. and Currier, D.P.; Clinical Electrotherapy Appleton and Lange 4 . Chemeron, M.H.; Physical Agents in Rehabilitation, W B Saunders, London.	
2. Michlovitz, S L; Thermal Agents in Rehabilitation, F A Davis, Philadelphia	
<b>LIST OF PRACTICALS –</b>	<b>60</b>
1. Demonstration of Bioelectrical principles	
2. Demonstration of electrotherapy instruments, principles of their functioning, usage, and safety implications for human beings.	
<b>Note: Emphasis is given only to generation circuit diagram and testing of the various electrotherapy apparatus.</b>	
<b>PRACTICAL EXAMINATION</b> Students will be assessed by viva based upon learning in theory and demonstration of various components of the equipments.	

*N.T.M.*

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School of Nursing and Paramedical  
Sciences

Department of Paramedical

SYLLABUS

Bachelor of Physiotherapy  
BPT

4½ YEAR DEGREE COURSE

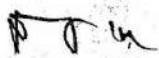


Year	BPT 1st year
Subject	Psychology & Sociology
Time	160 hrs Theory

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<b>Course code</b>	<b>Psychology &amp; Sociology</b>	
<b>BPHSI20Y105</b>		
<b>Pre-requisite</b>	Nil	<b>Syllabus version</b>
<b>Course Objectives:</b>		
This course will enable the student to understand specific psychological factors and effects in physical illness and this will help them to have a holistic approach in their dealings with patients during admission, treatment, rehabilitation and discharge.		
<b>Course Outcome:</b>		
<ol style="list-style-type: none"> <li>1. Student will understand about importance of psychology in health delivery system</li> <li>2. Student will understand etiology, pathology symptoms and management of various conditions</li> <li>3. Student will Understand patients empathetically.</li> </ol>		
<b>Student Learning Outcomes (SLO):</b>		
At the end of the course, the candidate will-		
<ol style="list-style-type: none"> <li>1. Be able to define the term Psychology &amp; its importance in the Health delivery System &amp; will gain knowledge of Psychological maturation during human Development &amp; growth &amp; alterations during aging process.</li> <li>2. Be able to understand the importance of psychological status of the person in Health &amp; disease, environmental &amp; emotional influence on the mind &amp; personality.</li> <li>3. Acquire the Knowledge as to how to deal with the patients.</li> <li>4. Socio economic and cultural differences.</li> <li>5. Socioeconomic and cultural issues related to morbidity owing to the physical disability and handicaps</li> </ol>		
<b>Unit – 1</b>	<b>32</b>	
<b>PSYCHOLOGY:</b> What is psychology, Fields of application of psychology, influence of heredity and environment on the individual, learning – theories & principles learning. Memory, Forgetting, theories of memory and forgetting, thinking & methods to improve memory. Thinking – process, problem solving, decision making and creative thinking.		
<b>SOCIOLOGY:</b> Introduction, Meaning-Definition and scope of Sociology. Its		



relation with Anthropology, Psychology, Social Psychology and ethics. Methods of Sociology-case study, Social Survey, Questionnaire, and interview and opinion poll methods. Importance of its study with special reference to health care professionals. B-Social Factors in Health and Disease: The meaning of Social Factors. The role of Social factors and illness.

**Unit – 2**

32

**PSYCHOLOGY:** Motivation - theories and types of Motivation. Emotions - theories of Emotions and stress  
Attitudes – theories, attitudes and behavior, factors in attitude change.  
Intelligence - theories of intelligence. Personality, theories of personality, factors influencing personality. Development and growth of behavior in infancy and childhood, adolescence, adulthood and old age.  
**SOCIOLOGY** Socialization: Meaning and nature of Socialization. Primary, Secondary, and Anticipatory Socialization. Agencies of Socialization.  
Social Groups: Concepts of social groups. Influence of formal and informal groups on health and sickness. The roll of primary groups and secondary groups in the hospital and rehabilitation settings.

**Unit – 3**

32

**PSYCHOLOGY** Behavior - normal and abnormal: Counseling - Definition, Aims and principles. Psychotherapy – brief introduction to paradigms in psychopathology and therapy. Psychological need of children and geriatric patients. Communication – effective and faulty. Emotional and behavioral disorders of childhood and adolescence- (in brief). Disorders of under and over controlled behavior. Eating disorders.  
**SOCIOLOGY:** The family - Meaning and definition, Functions. Changing family Patterns. Influence of family on the individual health, family, and nutrition. The effects of sickness on family and psychosomatic disease and their importance to Physiotherapy  
F-Community: Rural community – Meaning and features – Health hazards of rural population. rban community – Meaning and features -- Health hazards of urban population.

**Unit – 4**

32

**PSYCHOLOGY** Mental deficiency: Mental retardation, Learning disabilities, Autistic behavior.  
Anxiety Disorders: Phobias, panic disorder, Generalized Anxiety disorder  
Obsessive Compulsive Disorder,

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Post-traumatic Stress Disorder Somatoform and Dissociate Disorders: Conversion Disorder, Somatization Disorder, Dissociate Amnesia & Dissociate Fugue.

SOCIOLOGY Culture and Health: Concept of culture, Cultures and Behaviour, Cultural meaning of sickness

Culture and health disorders H-Social change: Meaning of social changes & Factors of social change. Human adaptation and social change. Social change and stress. Social and deviance. Social change and health Program. The role of social planning in the improvement of health and in rehabilitation.

**Unit - 5**

**32**

PSYCHOLOGY Personality Disorder. Patho-physiological Disorders - stress and health. Severe psychological disorders - Mood disorders, psychosis.

SOCIOLOGY: Social problems of disabled: Consequences of the following social problems in relation to sickness and Disability, remedies to prevent these problems. Population explosion. Poverty and unemployment. Beggary, Juvenile delinquency, Prostitution, Alcoholism, Problems of women in employment. J-Social security: Social security and social legislation in relation to the Disabled. K-Social worker: Meaning of social work; the role of a medical social worker

**# Mode: Flipped Class Room, Case Discussion, Lectures.**

**Reference Books :-**

1. Morgon, Clifford T; Introduction to Psychology Tata Mcg. Hill, Delhi
2. Farnald, L.D. Introduction to Psychology AITBS, Delhi
3. Korchin, Sheldon J.; Modern Clinical Psychology: Principals, CBS, New Delhi

**TEXT BOOKS :-**

1. McDavid, J.W. and Harari, H.; Social psychology: Individuals, Groups, Societies CBS, New Delhi
2. Bhusan, Vidya and Sachdeva, D.R.; Introduction to Sociology Kitab Mahal, New Delhi
3. Turner, J. H.; Structure of Sociological Theory, Jaipur Publication
4. Anand Kumar Indian Society and Culture Vivek, New Delhi

**Department of Paramedical**

**SYLLABUS**

**BPT**

**4½ YEAR DEGREE COURSE**

<b>Year</b>	<b>BPT 2<sup>nd</sup> Year</b>
<b>Subject</b>	<b>Pathology &amp; Microbiology</b>
<b>Time</b>	<b>100 hrs Theory</b>