# BACHELOR OF PHYSIOTHERAPY

## Era University, Lucknow

### Course Outline: 2024-2025

| | | | | | |
|---|---|---|---|---|---|
| **Name of the Program** | **Bachelor of Physiotherapy** | | | **Year/ Semester:** | **I year/I sem** |
| **Course Name** | **Human Anatomy-I** | **Course Code:** | **BPT 101/ BPP 101** | **Type:** | **Theory/Practical** |
| **Credits** | **05** | | | **Total Sessions Hours:** | **75 Hours** |
| **Evaluation Spread** | **Internal Continuous Assessment:** | **30 Marks** | | **End Term Exam:** | **70 Marks** |
| **Type of Course** | Compulsory | ✓ Core | | Creative | Life Skill |
| **Course Objectives** | The student will be able to demonstrate knowledge in human anatomy as needed for the study and practice of physiotherapy | | | | |
| **Course Outcomes (CO):** *After the successful course completion, learners will develop following attributes:* | | | | | |
| **Course Outcome (CO)** | **Attributes** | | | | |
| **CO1** | To identify the microscopic structure of various tissues and organs in human body and correlate the structure with the function& its application in practice of physiotherapy. | | | | |
| **CO2** | To understand the general anatomy of different human body system & its application in practice of physiotherapy. | | | | |
| **CO3** | To know about basic anatomical knowledge of boundaries and content of thoracic and abdominopelvic cavity. | | | | |
| **CO4** | To understand the muscles, bones and joints of the various regions & its application in practice of physiotherapy. | | | | |
| **CO5** | To understand the topographical and functional anatomy of the upper limbs & its application in practice of physiotherapy. | | | | |
| **Pedagogy** | Interactive, discussion-bases, student-centered, presentation. | | | | |
| **Internal Evaluation Mode** | Mid-term Examination: 30 Marks<br>Class test: 12 Marks<br>Class participation or any other : 04 Marks<br>Assignments/Project: 04 Marks<br>Attendance: 04 Marks<br>Class Presentation: 04 Marks<br>Bed Side behavior or Interaction in Class: 02 Marks | | | | |
| **Session Details** | **Topic** | | | **Hours** | **Mapped CO** |
| **Unit 1** | 1. Introduction and subdivisions of Anatomy.<br>2. Anatomical nomenclature: Terms of Planes, Positions, Body parts and movements.<br>3. Basic tissues of the body: Definition, location and their function.<br>4. Structure and appendages of skin.<br>5. Superficial & deep fascia: Definition and functions, modifications of deep fascia. | | | 10 | CO1 |

| | | | |
|---|---|---|---|
| **Unit 2** | 1. CVS: Arteries, Capillaries, Veins, Heart, Lymphatic system.<br>2. Respiratory system: Anatomy of upper and lower respiratory tract including lungs, pleura, nose larynx, trachea, Diaphragm, intercostals muscles and accessory muscles. | 10 | CO2 |
| **Unit 3** | 1. Peritoneum:- parietal and visceral peritoneum, folds and function of peritoneum<br>2. Large blood vessels of the gut.<br>3. Location, size, shape, shape, features, blood supply, nereve supply of the following- stomach, liver, spleen, kidney, urinary bladder, intestines, gall bladder, male and female reproductive system.<br>4. Location, size, shape, shape, features, blood supply, nereve supply of the endocrine glands. | 10 | CO3 |
| **Unit 4** | 1. Define skeleton, classification of skeleton.<br>2. Bone: properties, function, types, structure, blood supply, ossification. Applied anatomy of bone.<br>3. Myology: Classification of muscles and its characteristics features. Properties and structure of skeletal muscle.<br>4. Cartilage: types, characteristic and function. Applied anatomy of cartilage.<br>5. Arthrology: Joint, structure, function and classification. Basic feature and classification of synovial joint. Applied anatomy of joint | 10 | CO4 |
| **Unit 5** | 1. Outline the anatomical features, attachments, ossification and side determination of the bones of upper limb.<br>2. Muscles of Scapular region and back their origin, insertion action and nerve supply. Details of Deltoid, Trapezius and latissimus dorsi.<br>3. Fascia and Muscles of front and back of upper arm, fore arm and hand: origin, insertion, nerve supply and action.<br>4. Joints of superior extremity: Shoulder girdle, Shoulder joint, Elbow, Wrist and joints of hand.<br>5. Nerves and blood vessels of Superior Extremity and their position course, relations &distribution.<br>6. Boundaries and contents of axilla and cubital fossa, details of Brachial plexus.<br>7. Applied anatomy of all structures of Superior Extremity.<br><br>**PRACTICAL :**<br>1. Upper extremity including surface anatomy<br>2. Thorax including surface anatomy, abdominal muscles.<br>3. Embryology – models, charts & X- rays | 20 | CO5 |

**CO-PO Mapping**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 1 | 2 | - | - | - | - | - | - | - | - |
| CO2 | 3 | 1 | - | - | - | - | - | - | - | 1 |
| CO3 | 2 | 2 | - | - | - | - | - | - | - | 1 |
| CO4 | | 3 | | | 1 | - | 1 | - | - | |
| CO5 | | 3 | | | 1 | | 1 | | | 1 |

*Strongcontribution-3, Averagecontribution-2, Lowcontribution-1,*

**Suggested Readings:**

**Reference Books-**
1.B.D. Chaurasia's, Human Anatomy-Volume 1, 2, 3 CBS Publishers & Distributors.
2 Inderbir Singh, Textbook of Anatomy with Colour Atlas-Vol. 1, 2,
3 Jaypee Brothers. 3 Snell-Clinical Anatomy by regions –Lippincott
4 Basic Anatomy & Physiology by Smout and McDowell

| | |
|---|---|
| e-Learning Source: | 1. https://youtu.be/X5RUFXZZBH4<br>2. https://youtu.be/06o_XNKwuOE<br>3. https://youtu.be/4Sab-2E4ZDI |

**Recapitulation & Examination Pattern**

**Internal Continuous Assessment:**

| **Component** | **Marks** | **Pattern** |
|---|---|---|
| Class Test | 12 | Contains **01 long question.** question carries **04** Marks.<br>**02 Short questions.** Each question carries **02** Marks<br>**04 multiple choice questions.** Each question carries **01** Marks |
| Class participation or any other | 04 | This to be made on activities and instruction given by subject teacher. |
| Marks Assignments/Project: | 04 | Assignment to be made on topics and instruction given by subject teacher |
| Class Presentation: | 04 | This to be made on topics and instruction given by subject teacher |
| Bed Side behavior or Interaction in Class | 02 | This to be made on activities and instruction given by subject teacher. |
| Attendance | 04 | As per policy |
| **Total Marks** | **30** | |

# BACHELOR OF PHYSIOTHERAPY

## Era University, Lucknow

**Course Outline: 2024-2025**

| | | | | | |
|---|---|---|---|---|---|
| **Name of the Program** | **Bachelor of Physiotherapy** | | | **Year/Semester** | **1st year/1st Sem.** |
| **Course Name** | **Human Physiology I** | **Course Code:** | BPT 102/ BPP 102 | **Type** | **Theory/ Practical** |
| **Credits** | **5** | | | **Total Sessions Hours** | **75 Hours** |
| **Evaluation Spread** | **Internal Continuous Assessment:** | | **30 Marks** | **End Term Exam** | **70 Marks** |
| **Type of Course** | Compulsory | | ✓ Core | Creative | Life Skill |
| **Course Objectives** | 1. The objective of this course is to provide the students with an in depth knowledge of fundamental reactions of living organisms, particularly in the human body.<br>2. Students will develop the understanding of elementary human physiology | | | | |
| **Course Outcomes: (CO)** | *After the successful course completion ,learners will develop following attributes:* | | | | |
| **CO1** | To understand about general physiology including physiology of cell, tissues & membrane in details &identify various tissues of different system of human body | | | | |
| **CO2** | Explain and describe the composition and function of various body fluids like blood and lymph, their significance and related disorders | | | | |
| **CO3** | Student should be able to understand the basic physiological concept of nervous system, explain the physiology of nerve and muscle in details andits application in practice of physiotherapy | | | | |
| **CO4** | Understand the functional mechanism of cardiovascular system. along with the calculation, handling of equipment & measurement of blood pressure and its application in practice of physiotherapy | | | | |
| **CO5** | Understand the physiology of respiratory system which includes the mechanism and regulation of respiration, transport of gases and its application in practice of physiotherapy | | | | |
| **Pedagogy** | Interactive, discussion-based, student-centered, presentation. | | | | |
| **Internal Evaluation Mode** | Mid-term Examination: 30 Marks<br>Class test: 12 Marks<br>Class participation or any other : 04<br>Marks Assignments/Project: 04 Marks<br>Attendance: 04 Marks<br>Class Presentation: 04 | | | | |

| | Bed Side behavior or Interaction in Class: 02 | | |
|---|---|---|---|
| **Session Details** | **Topic** | **Hours** | **Mapped CO** |
| **Unit 1** | 1.**General Physiology**<br>Cell : Morphology, Organelles: their structure and function, Transport mechanism across cell membrane<br>Body fluids: Distribution and composition | 10 | CO1 |
| **Unit 2** | **2. Blood**<br>Introduction: Composition and function of blood, Plasma, RBC,WBC, Platelets<br>Hemoglobin – basic chemistry, fate and functions, Immunity definition, classification, concept of antigen & antibody.<br>Hemostatic mechanism: blood coagulation, anticoagulants<br>Blood groups: Landsteiner's law, Erythroblastosisfoetalis<br>Blood Transfusion : Cross matching, Indication and Complications<br>Lymph : compostion, formation , circulation and function<br>Applied physiology: Thalassemia syndrome, Hemophilia, VWF, Anemia, Leukocytosis, Bone marrow transplant, Oxygen debt | 14 | CO2 |
| **Unit 3** | **3. Nerve muscle physiology:**<br>Introduction: Resting membrane potential & action potential<br>Nerve : structure and function of neuron, classification, nerve injury- degeneration and regeneration<br>Neuralgia: Types and function<br>Physiology of brain: areas and connections, ANS, thermoregulation, peripheral nervous system<br>Muscle: classification, skeletal muscle: structure, neuromuscular junction, neuromuscular transmission<br>Applied physiology: Myasthenia gravis, Rigor mortis, Reaction of degeneration, Muscle disorders | 12 | CO3 |
| **Unit 4** | **4. Cardiovascular system**<br>Introduction: Physiological anatomy and nerve supply of heart and blood vessels<br>General organization and properties of cardiac muscle, Origin and conduction of cardiac impulse, cardiac cycle and heart sounds. Normal heart rate, bradycardia, tachycardia, Normal ECG, Cardiac output- normal values, physiological variations, Factors affecting cardiac out- put and regulation.<br>Arterial Blood pressure – normal values, measurement, determinants, short term and long term regulation<br>Shock – Definition, Classification, causes and features<br>Regional circulation- Coronary, muscular, cerebral, Functions of Lymph, Pressure and volume changes during cardiac cycle. | 12 | CO4 |

| | | | |
|---|---|---|---|
| | Patho-physiology of circulatory shock and edema, Effects of exercise training, Hyper/Hypotension, Hemodynamic. | | |
| **Unit 5** | **5. Respiratory system**<br>Introduction: Physiological anatomy- pleura, trachea bronchial tree, alveolus, respiratory membrane and their nerve supply, function of respiratory system.<br>General organization of respiratory system. Mechanics of respiration – Inspiratory and expiratory.<br>Muscles, intra-pleural pressure, lung & thoracic, Compliance, surfactant, lung volumes & capacities.<br>Diffusion of gases, Transport of respiratory gases, Regulation of respiration, Outline of hypoxia (types & physiological changes). Acclimatization to high altitude, Dead space, Ventilation/ perfusion ratio.<br>Maximum breathing capacity & breathing reserve, pulmonary function tests, Artificial respiration. Asphyxia, cyanosis (types and physiological changes), dysbarism, dyspnoea, orthopnoea, hyperpnoea, apnoea, hyperventilation | 12 | CO5 |
| | **PRACTICAL**<br>1. Clinical examination: examination of radial pulse, blood pressure,CVS, respiratory system, sendory system, motor system, reflexes, cranial nerves.<br>2. Amphibian experiments: demonstration and dry charts explanation, normal cardiogram of amphibian heart, properties of cardiac muscle, effect of temperature or cardiogram, simple muscle curve, effect of increasing the strength of the stimuli.<br>3. Effect of temperature on muscle contraction, effect of two successive stimuli, effect of fatigue, effect of load on muscle contraction, genesis of tetanus and clonus, velocity of impulse transmission<br>4. Haematology: to be done by the students<br>**5.** Study of miscroscope and its uses, determinants of RBC count, differential leukocyte count, estimation of hemoglobin, calculation of blood indices, determinants of blood groups, determinanats of bleeding time, determinants of clotting time, demonstration only: determinants of ESR, determinantsof PCV | 15 | |

**CO-PO and PSO Mapping**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | - | - | - | 1 | - | - | - | - | |
| CO2 | 3 | 1 | - | - | 1 | - | 2 | - | - | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **CO3** | 3 | 2 | | | 1 | | 2 | | | |
| **CO4** | 3 | 2 | 1 | 1 | 1 | | 2 | | | |
| **CO5** | 3 | 2 | 1 | 1 | 1 | | 2 | | | |

***Strongcontribution-3, Averagecontribution-2, Lowcontribution-1,***

**Suggested Readings:**

| | |
|---|---|
| **ReferenceBooks** | 1. Concise Medical Physiology by Chaudhuri, 4th Edition; New Central Book Agency.<br>2. Human Physiology, Sembulingam; 4th ed, Jaypee Brothers.<br>3. A Textbook of Practical Physiology, Ghai C L, Jaypee Brothers.<br>4. Practical physiology by Vijaya Joshi; Vora Medical Publication.<br>5. Human Physiology, Chatterjee. Vol: 1&2; 10th Edition; Medical & Allied Agency<br>6. Textbook of Medical Physiology by Guyton & Hall, 11th Edition; Elsevier Publication<br>7. Principles of Anatomy & Physiology, Tortora, 8th Edition; Harper & Row Publication<br>8. Textbook of Physiology : Ganong |
| **Para Text** | 1. https://youtu.be/JuhDx9hQAx8?si=8<br>2. https://youtu.be/Ta_vWUsrjho?si=wBgQOBJUex31eHMW<br>3. https://youtu.be/h1qSFZ9aw94?si=mgY-25npIwfAGpWF<br>4. https://youtu.be/uYm4l_alVV0?si=nhPsCu2IjBbqYxdD<br>5. https://youtu.be/VWamhZ8vTL4?si=IC31UYVm2J2W1A8F |

**Recapitulation & Examination Pattern**

**Internal Continuous Assessment:**

| **Component** | **Marks** | **Pattern** |
|---|---|---|
| Class test | 12 | Contains **01 long question.** Question carries **04** Marks.<br>**02 Short questions.** Each question carries **02** Marks<br>**04 multiple choice questions.** Each question carries **01** Marks |
| Class participation or any other | 04 | This to be made on activities and instruction given by subject teacher. |
| Marks Assignments/Project: | 04 | Assignment to be made on topics and instruction given by subject teacher |
| Class Presentation: | 04 | This to be made on topics and instruction given by subject teacher |
| Bed Side behavior or Interaction in Class | 02 | This to be made on activities and instruction given by subject teacher. |
| Attendance | 04 | As per policy |
| **Total Marks** | **30** | |

# BACHELOR OF PHYSIOTHERAPY

## Era University, Lucknow

### Course Outline: 2024-2025

| | | | | | |
|---|---|---|---|---|---|
| **Name of the Program** | **BPT** | | | **Year/ Semester:** | **I year/ 1 sem** |
| **Course Name** | **Biochemistry** | **Course Code:** | BPT 103 | **Type:** | **Theory** |
| **Credits** | **04** | | | **Total Sessions Hours:** | **60 Hours** |
| **Evaluation Spread** | **Internal Continuous Assessment:** | **30 Marks** | | **End Term Exam:** | **70 Marks** |
| **Type of Course** | Compulsory | • Core | | Creative | Life Skills |
| **Course Objectives** | 1. The students will be able to understand the biochemical change of the various elements of the body at cellular level and extra cellular level. | | | | |
| **Course Outcomes (CO):** *After the successful course completion, learners will develop following attributes:* | | | | | |
| **CO1** | The graduate should be able to understand the importance of nutrition. | | | | |
| **CO2** | The graduate should be able to identify the different types of biomolecules (carbohydrate, lipid and amino acid), to understand the chemistry of various types of biomolecules in maintaining the health. | | | | |
| **CO3** | The graduate should be able to understand the importance of Enzymes, nuclei acid and Digestion of biomolecules. | | | | |
| **CO4** | The graduate should be able to understand the importance of different pathways concerned with carbohydrate, lipid and protein metabolism along with theirapplication indifferent physical and clinical conditions after the completion of thecourse. | | | | |
| **CO5** | To understand the importance of Vitamin, minerals, Cell biology, muscle contraction, Hormones, Clinical biochemistry and acid base balance. | | | | |
| **Pedagogy** | Interactive, discussion-bases, student-centered, presentation. | | | | |
| **Internal Evaluation Mode** | Mid-term Examination: 30 Marks<br>Class test: 12 Marks<br>Class participation or any other : 04<br>Marks Assignments/Project: 04 Marks<br>Attendance: 04 Marks<br>Class Presentation: 04 Marks<br>Bed Side behavior or Interaction in Class: 02 Marks | | | | |
| **Session Details** | **Topic** | | | **Hours** | **Mapped CO** |
| **UNIT 1** | **Cell Biology:** Introduction, Cellstructure, Cell membranestructureand function,various types ofabsorption, Intracellular organelles and their functions, briefly oncytoskeleton.<br><br>**Nutrition:** RDA, BMR, SDA, caloric requirement and balanced diet. | | | **5** | **CO1** |

| | | | |
|---|---|---|---|
| **UNIT 2** | **Carbohydrates:** Definition, classification and general functions. Carbohydrate Metabolism- Glycolysis, T.C.A cycle.<br><br>**Lipids:** Definition, classifications and general functions. Essential fatty acids and their importance, Cholesterol, Lipoproteins. Metabolism-b-Oxidation of fatty acids, fatty liver and Ketosis. | **18** | **CO2** |
| **UNIT 3** | **Vitamins:** Definition, classification and functions, dietary source, daily requirement and deficiency disorders.<br><br>**Amino Acids:** Definition, classification, essential and nonessentialamino acids.<br><br>**Proteins:** Definition, classification, and Biomedical Importance. Metabolism: Formation and fate of ammonia, Urea cycle and its significance.<br><br>**Enzymes:** Definition, classification with examples, Factors affecting enzyme action, isoenzyme and coenzyme, Clinical importance of enzymes. | **14** | **CO5**<br><br>**CO2**<br><br>**CO4**<br><br>**CO3** |
| **UNIT 4** | **Biochemistry of connective tissue** - Introduction, various connective tissue proteins collagen, elastin- structure and associated disorders. Study of hemoglobin and myoglobin with their functions.<br><br>**Muscle Contraction:** Contractile elements in muscle, briefly on the process of muscle contraction, Energy for muscle contraction. | **6** | **CO5** |
| **UNIT 5** | **Clinical Biochemistry:** Normal levels of blood and urine constituents, Relevanceof blood and urine levels of Glucose, Urea, Uric acid, Creatinine, Calcium,Phosphates, pH and Bicarbonate, Liver function tests, Renal function tests. | **2** | **CO5** |

**CO-PO and PSO Mapping**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 1 | - | 1 | - | - | 1 | - | - | - | - |
| CO2 | 1 | - | 2 | 3 | 1 | 1 | - | - | - | 1 |
| CO3 | 1 | - | 1 | - | - | 1 | - | - | - | - |
| CO4 | 1 | - | 1 | 2 | - | 1 | - | - | - | 2 |
| CO5 | 1 | - | 1 | 2 | 2 | 1 | - | - | - | 1 |

*Strongcontribution-3, Averagecontribution-2, Lowcontribution-1,*

**Suggested Readings:**

**Text- Books**

1. Biochemistry, U. Satyanarayana, Elsevier; 6th edition, 2021
2. Textbook of Biochemistry for Physiotherapy Students, Harbans lal, CBS Publishers and Distributors Pvt. Ltd.; 1st Edition2023.
3. Medical Biochemistry for Physiotherapy Students, Jagmohan Singh, Harpreet Kaur, Jaypee Brothers Medical Publishers; 1st Edition 2008.

**Reference Books**

1. Lehninger Principles of Biochemistry: International Edition, David L. Nelson, Michael Cox, W.H.Freeman & Co Ltd; 8th edition 2021.

**Para Text**

- https://www.youtube.com/watch?v=t5DvF5OVr1Y
- https://www.youtube.com/watch?v=gggC9vctvBQ
- https://www.youtube.com/watch?v=ufvZ8bYtyO8
- https://www.youtube.com/watch?v=Q6R4o-oECxs

**Recapitulation & Examination Pattern**

**Internal Continuous Assessment:**

| Component | Marks | Pattern |
|---|---|---|

| | | |
|---|---|---|
| Class Test | 12 | Contains **01 long question.** question carries **04** Marks.<br>**02 Short questions.** Each question carries **02** Marks<br>**04 multiple choice questions.** Each question carries **01** Marks |
| Class participation or any other | 04 | This to be made on activities and instruction given by subject teacher. |
| Marks Assignments/Project: | 04 | Assignment to be made on topics and instruction given by subject teacher |
| Class Presentation: | 04 | This to be made on topics and instruction given by subject teacher |
| Bed Side behavior or Interaction in Class | 02 | This to be made on activities and instruction given by subject teacher. |
| Attendance | 04 | As per policy |
| **Total Marks** | **30** | |

# BACHELOR OF PHYSIOTHERAPY

## Era University, Lucknow

### Course Outline: 2024-2025

| | | | | | |
|---|---|---|---|---|---|
| **Name of the Program** | **BPT** | | | **Year/Semester:** | **I year/ I sem** |
| **Course Name** | **Biophysics & Introduction to Physiotherapy** | **Course Code:** | **BPT 104/ BPP 104** | **Type:** | **Theory & Practical** |
| **Credits** | **4** | | | **Total Sessions Hours:** | **60 Hours** |
| **Evaluation Spread** | **Internal Continuous Assessment** | **30 Marks** | | **End Term Exam:** | **70 Marks** |
| **Type of Course** | ○ Compulsory | ◉ Core | | ○ Creative | ○ Life Skill |
| **Course Objectives** | 1. To understand the fundamental principles of electrophysiology and ion channels in the human body<br>2. To analyze the impact of different energy forms such as biomagnetism, electromagnetic, acoustic, and magnetic on biophysiological processes<br>3. To explore the theory and applications of photoactivation in biology and medicine<br>4. To comprehend the optical properties of the skin and the effects of light on the human body<br>5. To provide a comprehensive overview of the healthcare system and the history and various specializations in physiotherapy | | | | |

**CourseOutcomes(CO):** *Afterthesuccessfulcoursecompletion,learnerswilldevelopfollowing attributes:*

| Course Outcome (CO) | Attributes |
|---|---|
| **CO1** | Foster a comprehensive understanding of nerve signaling, receptor function, and physiological mechanisms, enriching students' knowledge of human electrophysiology |
| **CO2** | Enable understanding and application of biomagnetic principles for medical and biological advancements |
| **CO3** | Gain insight into the effects of light on biological systems and understand its clinical applications, from photodynamics therapy to photoprotection |
| **CO4** | Gain insight into the structure and function of national health systems, as well as the historical evolution of physiotherapy as a profession |
| **CO5** | Gain comprehensive knowledge of specialized areas in physiotherapy, facilitating tailored patient care and treatment planning |
| **Pedagogy** | Interactive, discussion-based, student-centered, presentation. |

| | | | |
|---|---|---|---|
| **Internal Evaluation Mode** | Mid-term Examination: 30 Marks<br>Class test: 12 Marks<br>Class participation or any other : 04<br>Marks Assignments/Project: 04 Marks<br>Attendance: 04 Marks<br>Class Presentation: 04 Marks<br>Bed Side behavior or Interaction in Class: 02 Marks | | |
| **Session Details** | **Topic** | **Hours** | **Mapped CO** |
| **Unit1** | 1. Overview of the electrophysiology of different signals in human body; Potential of nerve; resting membrane potential; nerst equation<br>2. Ionic basis; gating; kinetics; physio pharmacology of different channels; biphasic and compound action potential; receptor Potential; general transduction mechanism; stimulus receptor relationship; Adaptation of receptors | 9 | CO1 |
| **Unit2** | 1. Biomagnetism- effects and applications; electrical impedance; biological Impedance; theory of thermography; application in biology and medicine; use of electromagnetic, acoustic and magnetic energies to produce Biophysiological effects at cellular, tissue and organ level | 9 | CO2 |
| **Unit 3** | 1. Photoactivation of biological system; photodynamic theory; mechanism of Photodynamic action on cells; photobiostimulation through laser; photo Medicine<br>2. Optical properties of the skin; acute and chronic effect of sunlight on skin; Photosensitivity; phototoxicity; photoallergy and its clinical applications; Beneficial effects of sun and artificial light energy; photoprotection; Photoimmunology | 9 | CO3 |
| **Unit 4** | 1. Patterns of Health Care Delivery: Official organs of health system at national level & their function, Healthcare providers, role & amp; importance<br>2. History of Physiotherapy | 9 | CO4 |
| **Unit 5** | 1. General Information's about<br>a. Physiotherapy OPD<br>b. Neurological Physiotherapy<br>c. Orthopedic Physiotherapy<br>d. Developmental Pediatric Physiotherapy<br>e. Cardio-Pulmonary Physiotherapy (ICU, NICU and Post-Op ICU, Wards)<br>f. Health Fitness Physiotherapy- Obesity, Diabetic clinic, Life style modification clinic<br>g. Geriatric Physiotherapy<br>h. Industrial Physiotherapy and Ergonomics<br>i. Community Physiotherapy<br>j. Women's Health Physiotherapy, Incontinence clinic | 9 | CO5 |
| **PRACTICALS** | 1. demonstration of resting membrane potential<br>2. demonstration of action potential<br>3. demonstration of biomagnetism<br>4. demonstration of photoactivation<br>5. demonstration of optical properties of skin | 15 hrs. | |

**CO-POMapping**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | | | 2 | | 2 | | | |
| CO2 | 3 | 3 | | 1 | 2 | | 2 | | | |
| CO3 | 3 | 3 | | 2 | 2 | | 2 | | | |
| CO4 | 2 | 2 | | 2 | 2 | 2 | 2 | 2 | 3 | |
| CO5 | 2 | 2 | 3 | 3 | 2 | | 3 | 2 | 3 | 1 |

*Strongcontribution-3, Averagecontribution-2, Lowcontribution-1,*

**Suggested Readings:**

| | |
|---|---|
| **Text-Books** | 1. Biophysics : an introduction by Rodney Cotterill<br>2. Biophyscs : searching for principles by William Bialek<br>3. Introduction to Physiotherapy Practice by Charles D. Ciccone |
| **Reference Books** | 1. Bilogical Physics: Energy, information, life by Philip Nelson<br>2. Introduction to Physiotherapy : A contemporary Approach by Lesley A. Olswang and Scott D. Devenney. |
| **Para Text** | 1. https://www.youtube.com/watch?v=MplWXZTOk6o<br>2. https://youtu.be/iBDXOt_uHTQ<br>3. https://youtu.be/iBDXOt_uHTQ |

**Recapitulation &Examination Pattern**

**Internal Continuous Assessment:**

| Component | Marks | Pattern |
|---|---|---|
| Class test | 12 | Contains 01 long queation. question carries 04 marks<br>02 short questions. each question carries 02 marks<br>04 multiple choice questions. each question carries 01 marks |
| Class participation or any other | 04 | This to be made on activities and instruction given by subject teacher |
| Marks assignments/project | 04 | Assignment to be made on topics and instruction given by subject teacher |
| Class presentation | 04 | This to be made on topics and instruction given by subject teacher |
| Bed side behavior or interaction in class | 02 | This is to be made on activities and instruction given by subject teacher |
| attendance | 04 | As per policy |
| Total marks | 30 | |

# BACHELOR OF PHYSIOTHERAPY

## Era University, Lucknow

### Course Outline: 2024-2025

| | | | | | |
|---|---|---|---|---|---|
| **Name of the Program** | **Bachelor of Physiotherapy** | | | **Year/Semester:** | **I year/I sem** |
| **Course Name** | **Health Psychology** | **Course Code:** | **BPT-105** | **Type:** | **Theory** |
| **Credits** | **04** | | | **Total Sessions Hours:** | **60 Hours** |
| **Evaluation Spread** | **Internal Continuous Assessment:** | **30 Marks** | | **End Term Exam:** | **70 Marks** |
| **Type of Course** | Compulsory | ✓ Core | | Creative | Life Skill |
| **Course Objectives** | 1. The student will be able to recognize and help with the psychological factors involved in disability, pain , disfigurement, unconscious patients , chronic illness, death , bereavement and medical surgical patients/conditions.<br>2. They should also understand the elementary principles of behaviour for applying in the therapeutic environment.<br>3. The students will be able to show their proficiency based on written and internal evaluation. | | | | |
| **CourseOutcomes(CO):** *Afterthesuccessfulcoursecompletion,learnerswilldevelopfollowing attributes:* | | | | | |
| **CO1** | Recognize and help with the psychological factors involved in disability, pain, disfigurement, unconscious patients,chronic illness, death, bereavement and medical-surgical patients/conditions. | | | | |
| **CO2** | Understand the elementary principles of behavior for applying in the therapeutic environment. | | | | |
| **CO3** | Perform psycho-social assessment of patients in various development stages | | | | |
| **CO4** | Understand ego defence mechanism and learns counselling techniques to help those in need. | | | | |
| **CO5** | Know about importance of psychology in health delivery system. | | | | |
| **Pedagogy** | Interactive, discussion-bases, student-centered, presentation. | | | | |
| **Internal Evaluation Mode** | Mid-term Examination: 30 Marks<br>Class test: 12 Marks<br>Class participation or any other : 04 Marks<br>Assignments/Project: 04 Marks<br>Attendance: 04 Marks<br>Class Presentation: 04 Marks<br>Bed Side behavior or Interaction in Class: 02 Marks | | | | |

| Session Details | Topic | Hours | Mapped CO |
|---|---|---|---|
| Unit1 | **Introduction to Psychology :-** Schools , Methods , Branches & Psychology and physiotherapy.<br>**Growth and Development :-** Lifespans, Heredity and environment.<br>**Sensation, attention and perception :-** Sensation, Attention, perception , Illusion and hallucination. | 10 | CO1 |
| Unit2 | **Motivation :-** Motivation cycle , Classification of Motives, Abraham Maslow's theory of need hierarchy<br>**Frustration and conflict :-** Frustration , Conflict , Management of frustration and conflict.<br>**Emotions :-** Three level of analysis of emotions , Theories of Emotions, Stress and Management. | 10 | CO2 |
| Unit3 | **Intelligence :-** Theories of intelligence , Distribution of intelligence , Assessment of intelligence.<br>**Thinking :-** Reasoning , Problem solving & Creative thinking.<br>**Learning :-** Factors affecting learning, Theories of Learning, Effective ways of learning.<br>**Personality** :- Approaches to personality, Personality assessment, Defence mechanism, | 15 | CO3 |
| Unit4 | **Social psychology :-** Leadership and Attitude<br>**Clinical Psychology :-** Models of training, Abnormal behaviour assessment, Clinical judgement, Self management methods , Physiotherapy patients interaction, Stress management, Group therapy, Body awareness, Pediatric, Child and Geriatric psychology<br>**Counselling:-** Principles and types of counselling, PLISSIT model, Principles and techniques of counselling special children and family members. | 15 | CO4 |
| Unit 5 | **Yogic psychology :-** Mann , Buddhi , Chit, Ahankar, Vrittis, True knowledge and Accurate knowledge, Imagination, Sleep, Memory, Kleshas, Lack of awareness, Vikshepas, Disease, Apathy and Mental dullness, Dilemma and indecision, Carelessness, Haste, Indiffrence, laziness , Absence, Fear of missing out (FOMO), Digital Distraction , Guilt and Shame, Solution. | 10 | CO5 |

**CO-POandPSOMapping**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 1 | 3 | 2 | - | 1 | 1 | - | - | 3 |
| CO2 | 3 | 3 | 2 | 2 | 1 | - | 2 | - | - | 1 |
| CO3 | 3 | 2 | 2 | 1 | 1 | - | 1 | - | - | 1 |
| CO4 | 3 | 1 | 2 | 3 | - | - | 2 | 3 | 3 | 3 |
| CO5 | 2 | 3 | 3 | 2 | - | - | 2 | 1 | - | 1 |

*Strongcontribution-3, Averagecontribution-2, Lowcontribution-1,*

**SuggestedReadings:**

| | |
|---|---|
| **Text-Books** | 1. Textbook of Psychology by Rajiv Khanna |
| **Reference Books** | 1. Morgan et al (2003) . Introduction to Psychology , New Delhi : Tata McGraw hill |

| ParaText | |
|---|---|
| | • https://www.youtube.com/watch?v=vo4pMVb0R6M&list=PLGMVCsud2sqX1F5BkUp7yiIFcGtFjb1hZ<br>• https://www.youtube.com/watch?v=9hdSLiHaJz8<br>• **https://www.youtube.com/watch?v=9xTz3QjcloI**<br>• https://www.youtube.com/watch?v=RS1c9IxdBw8 |

**Recapitulation & Examination Pattern**

**Internal Continuous Assessment:**

| **Component** | **Marks** | **Pattern** |
|---|---|---|
| Class test | 12 | Contains **01 long question.** question carries **04**Marks.<br>**02 Short questions.** Each question carries **02**Marks<br>**04 multiple choice questions.** Each question carries **01**Marks |
| Class participation or any other | 04 | This to be made on activities and instruction given by subject teacher. |
| Marks Assignments/Project: | 04 | Assignment to be made on topics and instruction given by subject teacher |
| Class Presentation: | 04 | This to be made on topics and instruction given by subject teacher |
| Bed Side behavior or Interaction in Class | 02 | This to be made on activities and instruction given by subject teacher. |
| Attendance | 04 | As per policy |
| **Total Marks** | **30** | |

# BACHELOR OF PHYSIOTHERAPY

## Era University, Lucknow

### Course Outline: 2024-2025

| | | | | | |
|---|---|---|---|---|---|
| **Name of the Program** | **Bachelor of Physiotherapy** | | | **Year/ Semester:** | **I year/ I sem** |
| **Course Name** | **Sociology** | **Course Code:** | BPT 106 | **Type:** | **Theory** |
| **Credits** | **03** | | | **Total Sessions Hours:** | **45 Hours** |
| **Evaluation Spread** | **Internal Continuous Assessment:** | **30** | | **End Term Exam:** | **70** |
| **Type of Course** | Compulsory | ✓ Core | | Creative | Life Skill |
| **Course Objectives** | The student will be able to understand the importance and role of social structures and their mutual relationship with human behavior | | | | |
| **Course Outcomes (CO):** *After the successful course completion, learners will develop following attributes:* | | | | | |
| **Course Outcome (CO)** | **Attributes** | | | | |
| **CO1** | Students will be informed about the gradual progression of Sociology as a discipline and its dynamic nature | | | | |
| **CO2** | Students will have better understanding of the fundamental concepts of Society that will improve their understanding of human behavior and social systems | | | | |
| **CO3** | Students will be well aware about the social change and the processes of social change | | | | |
| **CO4** | Be able to enhance the ability to enquire the society through tools of sociological research | | | | |
| **Pedagogy** | Interactive, Socratic Method, discussion-bases, student-centered, presentation. | | | | |
| **Internal Evaluation Mode** | Mid-term Examination: 30 Marks<br>Class test: 12 Marks<br>Class participation or any other : 04 Marks<br>Assignments/Project: 04 Marks<br>Attendance: 04 Marks<br>Class Presentation: 04 Marks<br>Bed Side behavior or Interaction in Class: 02 Marks | | | | |
| **Session Details** | **Topic** | | | **Hours** | **Mapped CO** |
| **Unit 1** | **Introduction:**<br>• Meaning- Definition and scope of Sociology<br>• Its relation to Anthropology, Psychology, Social Psychology<br>• Methods of Sociological investigations- Case study, social survey, questionnaire, Interview and opinion poll methods.<br>• Importance of its study with special reference to Health Care Professionals.<br>**Social Factors in Health and disease situations**:<br>• Meaning of social factors | | | 10 | CO1, CO4 |

| | | | |
|---|---|---|---|
| | • Role of social factors in health and illness<br><br>**Socialization**<br>• Meaning and nature of Socialization<br>• Primary, Secondary and Anticipatory socialization<br>• Agencies of socialization | | |
| **Unit 2** | **Social Groups**<br>• Concepts of social groups, influence of formal and informal groups on health and sickness<br>• The role of primary groups and secondary groups in the hospital and rehabilitation setup.<br>**Family:**<br>• The family, meaning and definitions<br>• Functions of types of family<br>• Changing family patterns<br>• 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.<br>**Community**<br>• Rural community: Meaning and features –Health hazards of rurality, health hazards to tribal community<br>• Urban community: Meaning and features- Health hazards of urbanities.<br>**Culture and Health:**<br>• Concept of Health<br>• Concept of Culture<br>• Culture and Health<br>• Culture and Health Disorders | 10 | CO2 |
| **Unit 3** | **Social Change:**<br>• Meaning of social changes<br>• Factors of social changes<br>• Human adaptation and social change<br>• Social change and stress.<br>• Social change and deviance<br>• Social change and health programme<br>• The role of social planning in the improvement of health and rehabilitation. | 10 | CO3 |
| **Unit 4** | **Social Problems of Disabled**<br>Consequences of the following social problems in relation to sickness and disability, remedies to prevent these problems<br>• Population explosion<br>• Poverty and unemployment<br>• Beggary<br>• Juvenile delinquency<br>• Prostitution | 15 | CO4 |

| | | | |
|---|---|---|---|
| | • Alchoholism<br>• Problems of women in employment<br>• Geriatric problems<br>• Problems of underprivileged<br>**Social Security**<br>Social security and social legislation in relation to the disabled.<br>**Social worker**<br>• Meaning of Social Work<br>• The role of a Medical Social Worker | | |

**CO-PO Mapping**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | - | - | 2 | - | 2 | 2 | 1 | 1 | 1 | - |
| CO2 | - | - | - | 2 | 2 | 2 | 3 | 3 | 1 | - |
| CO3 | - | - | - | - | 1 | 1 | 2 | 2 | - | -- |
| CO4 | - | - | - | - | 1 | 1 | 2 | 2 | - | - |

*Strongcontribution-3, Averagecontribution-2, Lowcontribution-1,*

**Suggested Readings:**

**Reference Books-**

- Rao C.N Shankar,2004, Sociology of Indian Society, S. Chand Publication
- Rao C.N. Shankar,2007, Principles of Sociology with An Introduction To Social Thought, S. Chand Publication
- Neeraja K.P,2005, Textbook of Sociology for Physiotherapy Students, Jaypee Brothers Publication

| | |
|---|---|
| e-Learning Source: | • Social Institutions: A Reformulation of the Concept, Thomas W. Martin, Pacific Sociological Review, vol. 11, 2: pp. 100-109, First Published Jun 1, 1968 https://indianexpress.com/article/opinion/columns/anxiety-driven-pursuit-of-cultural-purity-<br>• Family, e-gyankosh http://egyankosh.ac.in/handle/123456789/18788<br>• The role of family environment and parent child relationship in happiness disposition http://hdl.handle.net/10603/116052<br>• Introduction to Sociometry, Dr. V. K. Maheshwari **http://www.vkmaheshwari.com/WP/?p=50** |

**Recapitulation & Examination Pattern**

**Internal Continuous Assessment:**

| Component | Marks | Pattern |
|---|---|---|
| Class Test | 12 | Contains **01 long question.** question carries **04**Marks.<br>**02 Short questions.** Each question carries **02**Marks<br>**04 multiple choice questions.** Each question carries **01**Marks |
| Class participation or any other | 04 | This to be made on activities and instruction given by subject teacher. |
| Marks Assignments/Project: | 04 | Assignment to be made on topics and instruction given by subject teacher |
| Class Presentation: | 05 | This to be made on topics and instruction given by subject teacher |
| Attendance | 05 | As per policy |
| **Total Marks** | **30** | |

# BACHELOR OF PHYSIOTHERAPY

## Era University, Lucknow

### Course Outline: 2024-2025

| Name of the Program | Bachelor of Physiotherapy | | | Year/ Semester: | I year/I sem |
|---|---|---|---|---|---|
| Course Name | English Communication | Course Code | ENG101 | Type:- | Theory |
| Credits | 03 | | | Total Hours | 45 hours |
| Evaluation Spread | Internal Assessment | 30 | | End Term Exam | 70 |
| Type of Course | ○ Compulsory | ◉ Core | | ○ Creative | ○ Life Skill |
| Course Objectives | This course aims to:<br>1. Develop students in oral presentation, writing, logical organization and structured communication.<br>2.Help the students to use communication techniques, verbally and non-verbally through which he is able tocommunicate better which is essential for professional growth.<br>3.To know the appropriate use of grammar and basic structure of sentences.<br>4.Elevate confidence among students for listening, speaking, reading and writing better. | | | | |
| **Course Outcomes (CO): After the successful course completion learner will develop following attributes.** | | | | | |
| Course Outcome (CO) | Attributes | | | | |
| CO1 | 1. Learn appreciation of logical reasoning and organized and effective oral presentation. | | | | |
| CO2 | 2. Understand the importance of communication techniques. | | | | |
| CO3 | 3. Have better understanding of the basic tools of grammar and sentence structure. | | | | |
| CO4 | 4. Be able to communicate better through improved listening, speaking, reading and writing skills. | | | | |
| Pedagogy | Interactive, discussion-based, student-centric, activity based | | | | |
| Internal Evaluation Mode | Mid-term Examination: 30 Marks<br>Class test: 12 Marks<br>Class participation or any other : 04 Marks<br>Assignments/Project: 04 Marks<br>Attendance: 04 Marks<br>Class Presentation: 04 Marks<br>Bed Side behavior or Interaction in Class: 02 Marks | | | | |

| Session Details | Topic | Hours | Mapped CO |
|---|---|---|---|
| Unit 1 | **Introduction to Professional Communication**<br>Communication Process<br>Channels of Communication: Verbal and Non- | 15 Hours | CO1 |

| | | | |
|---|---|---|---|
| | Verbal Barriers of Communication and how to overcome them<br>Nuances of Communication in a hospital environmentRole and importance of Professional Communication **Basics of English Language Usage and Grammar:**Parts of Speech<br>Tenses<br>Euphemisms<br>Portmanteau words<br>Synonyms and antonymsHomophones | | |
| **Unit 2** | **Effective Speaking**<br>Importance of Speaking effectively<br>Framing short speeches, nuances of good deliveryPractice through Extempore Speech<br>Presentation Skills<br>Delivering short presentations<br>Group Discussion Skills and practice | 10 Hours | CO2 |
| **Unit 3** | **Effective Reading and Writing**<br>Active Reading Strategies- Previewing and skimming, annotating and highlighting,summarizing and paraphrasing<br>Critical Reading Skills- Identifying main idea, recognizing purpose and tone, evaluatingargument and evidence<br>Writing and Structured Crafting Process- Prewriting techniques: brainstorming, freewriting, proofreading and editing<br>Adaptive writing for different audiences<br>Future application of adaptive reading and writing skills | 10 Hours | CO3 |
| **Unit 4** | **Effective Listening**<br>Introduction to Listening<br>Types of Listening<br>Listening in difficult situations Overcoming barriers to Listening<br>Critical Listening and Social Support<br>Techniques to practice better Listening | 10 Hours | CO4 |

**CO-PO and PSO Mapping**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | - | - | 2 | 3 | 2 | 3 | 2 | 3 | 3 | 2 |
| CO2 | - | - | 3 | 2 | 3 | 3 | 2 | 2 | 3 | 3 |
| CO3 | - | - | 2 | 2 | 2 | 3 | 2 | 2 | 3 | 2 |
| CO4 | - | - | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

*Strong contribution-3, Average contribution-2, Low contribution-1,*

**Suggested Readings:**

| | |
|---|---|
| **Text- Books** | **Note-All reading material will be provided by the faculty member well in time.** |
| **ReferenceBooks** | 1. Professional Communication. 2nd edition by Meenakshi Raman and Sangeeta Sharma. Oxford University Press 2014.<br>2. Professional Communication. 3rd edition by Raavee Tripathi. SK Kataria and Sons. 2016.<br>3. Communication Skills by Sanjay Kumar and Pushp Lata. Oxford University Press. 2017. |

**Recapitulation & Examination Pattern**

**Internal Continuous Assessment:**

| Component | Marks | Pattern |
|---|---|---|
| Class Test | 12 | Contains **01 long question.** question carries **04** Marks.<br>**02 Short questions.** Each question carries **02** Marks<br>**04 multiple choice questions.** Each question carries **01** Marks |
| Class participation or any other | 04 | This to be made on activities and instruction given by subject teacher. |
| Marks Assignments/Project: | 04 | Assignment to be made on topics and instruction given by subject teacher |
| Class Presentation: | 04 | This to be made on topics and instruction given by subject teacher |
| Bed Side behavior or Interaction in Class | 02 | This to be made on activities and instruction given by subject teacher. |
| Attendance | 04 | As per policy |
| **Total Marks** | **30** | |