

Course Code	Course Name	Credits
26PE101	Human Anatomy and Physiology	04

### Course Objectives

- Explain the basic concepts, scope, and importance of Anatomy and Physiology in Physical Education.
- Describe the structure and functions of cells, tissues, and muscular and skeletal systems.
- Apply knowledge of body systems (nervous, digestive, respiratory, circulatory) to physical activity and performance
- Examine the structure and functioning of major organs such as the heart, lungs, brain, and joints.
- Assess the role of physiological processes like respiration, circulation, and digestion in maintaining fitness.
- Integrate knowledge of endocrine glands and hormones to understand growth, development, and body regulation

### Learning Outcomes

Upon successful completion of this course it is intended that a student will be able to:

- Identify and define key anatomical and physiological terms and systems.
- Explain the structure and functions of cells, tissues, muscles, and bones.
- Use knowledge of body systems to explain responses to exercise and physical activity.
- Differentiate between various systems (e.g., skeletal vs muscular, respiratory vs circulatory).
- Interpret the role of organs and hormones in maintaining body homeostasis and performance.
- Develop basic applications of anatomical and physiological principles in physical education and training.

### Unit 1 - Introduction to Human Anatomy & Body Organization

Meaning and importance of anatomy in physical education. Levels of structural organization (cell, tissue, organ, system)

Basic anatomical terminology (planes, axes, directions). Overview of body systems. Concept of homeostasis.

**Unit 2- Structure and functions of the skeletal system.** Types of bones (long, short, flat, irregular). Major bones of the human body (axial & appendicular skeleton) .Joints: types and movements (hinge, ball & socket, pivot, etc.)

Role of bones and joints in physical activity and sports

### Unit 3 Muscular System

Types of muscles (skeletal, smooth, cardiac) .Structure of skeletal muscle .Muscle contraction mechanism (basic concept).Major muscle groups and their functions. Role of muscles in movement, posture, and exercise

### Unit 4Circulatory & Respiratory Systems

#### Circulatory System:

Structure of heart and blood vessels .Blood composition and functions .Circulation of blood (systemic and pulmonary)

Effects of exercise on heart rate and blood flow

**Respiratory System:** Organs of respiration .Mechanism of breathing .Lung capacity and gas exchange .Effects of exercise on respiratory system.

### Unit 5 Nervous System & Sports Injuries

#### Nervous System:

Structure and function of neurons

Central and peripheral nervous systems

Role in coordination, reflex action, and movement control

#### Sports Injuries (Basic Anatomy Link):

Types of common sports injuries (sprain, strain, fracture, dislocation)

Prevention and basic management (RICE principle)

Importance of anatomical knowledge in injury prevention

### Reference Books:

1. . Bucher, C. A. (n.d.) - Foundation of physical education. St. Louis: The C.V. Mosby Co.
2. Deshpande, S. H. (2014) - Physical Education in Ancient India. Amravati: Degree college of Physical education.
3. Dash, B.N. (2003.) –Principles of Education, Neelkamal publication, Hyderabad.
4. Kamlesh, M.L. (2002) –Sociological Foundation of Physical Education, Metropolitan Book co. Pvt. Ltd., Delhi.
5. Pandey, R.S.( 1991) Philosophical & Sociological Foundation of Education, Vinod PustakMandir, Agra,.
6. Bhatia, K.K. &Narang, C.L. (1984.)– Philosophical & Sociological Bases of Education, Prakash Bros., Ludhiana