HUMAN ANATOMY & PHYSIOLOGY

Course Code PE-322 **Credit Hours** 3 (2-1)

Course Description:

This course provides students with fundamental knowledge of human anatomy and physiology, emphasizing the interdependence of structure and function in the human body. The course explores the body's systems, their roles in maintaining homeostasis, and their relevance to physical activity and sports performance.

Course Learning Outcomes (CLOs):

By the end of this course, students will be able to:

1. Identify the structure and function of the major organ systems.
2. Explain the physiological mechanisms that support bodily functions.
3. Analyze the interrelationships between systems in maintaining homeostasis.
4. Apply anatomical and physiological knowledge to improve athletic performance.
5. Demonstrate competence in using essential laboratory tools to study anatomy and physiology.

Course Content:

Week 1-2

Introduction to Anatomy & Physiology

- Definitions and Scope
- Levels of Structural Organization
- Homeostasis: Definition and Importance
- Anatomical Terminology and Body Orientation

Week 3-4

Skeletal System

- **Anatomy**: Types of Bones, Structure of Long Bones, Axial and Appendicular Skeleton
- **Physiology**: Bone Growth, Remodeling, and Repair
- **Practical**: Identifying Bones and Joints Using Anatomical Models

Week 5-6

Muscular System

- **Anatomy**: Types of Muscles, Structure of Skeletal Muscle
- **Physiology**: Muscle Contraction Mechanisms, Energy Sources
- **Practical**: Locating Major Muscle Groups and Simulating Movements

Week 7-8

Cardiovascular System

- **Anatomy**: Heart Structure, Blood Vessels, and Blood Composition
- **Physiology**: Blood Circulation, Cardiac Cycle, Blood Pressure Regulation
- **Practical**: Monitoring Pulse Rate and Measuring Blood Pressure

Week 9-10

Respiratory System

- **Anatomy**: Structure of the Respiratory Tract and Lungs

- **Physiology**: Mechanisms of Breathing, Gas Exchange
- **Practical**: Spirometry Tests and Measuring Breathing Rates

Week 11-12

Nervous System

- **Anatomy**: Central and Peripheral Nervous Systems
- **Physiology**: Signal Transmission, Reflex Arcs
- **Practical**: Testing Reflexes and Nervous System Responses

Week 13-14

Digestive and Endocrine Systems

- **Digestive System**: Organs and Their Functions, Digestive Enzymes
- **Endocrine System**: Glands and Hormones, Feedback Mechanisms
- **Practical**: Identifying Digestive Organs and Hormonal Effects Simulations

Week 15-16

Integration and Final Assessment

- Interdependence of Body Systems
- Relevance to Sports and Exercise Performance
- **Practical Exam**: Comprehensive System Analysis

Teaching and Learning Methods:

- **Lectures**: Core concepts supported with diagrams and multimedia tools
- **Laboratory Sessions**: Hands-on use of anatomical models, physiological testing
- **Case Studies**: Analysis of scenarios related to physical activities
- **Workshops**: Group discussions on system interrelationships
- **Interactive Learning**: Peer teaching and simulation exercises

Recommended Books (APA Style):

1. Marieb, E. N., & Keller, S. M. (2021). *Human anatomy & physiology* (11th ed.). San Francisco, CA: Pearson.
2. Martini, F. H., Nath, J. L., & Bartholomew, E. F. (2018). *Fundamentals of anatomy & physiology* (11th ed.). San Francisco, CA: Pearson.
3. Tortora, G. J., & Derrickson, B. (2019). *Principles of Anatomy and Physiology* (15th ed.). Hoboken, NJ: Wiley.
4. Silverthorn, D. U. (2020). *Human physiology: An integrated approach* (8th ed.). New York, NY: Pearson.
5. Saladin, K. S. (2022). *Anatomy & physiology: The unity of form and function* (9th ed.). New York, NY: McGraw Hill.