Course Code	Course Name	Credits
26PE102	**Introduction to Physiology**	04

Course Objectives

- Explain the meaning, scope, and importance of Exercise Physiology in Physical Education and career applications.
- Describe functional and physiological adaptations to exercise, including neuromuscular, hormonal, and metabolic changes.
- Examine the effects of exercise on major body systems such as muscular, circulatory, respiratory, nervous, and digestive systems.
- Explain muscle structure, properties, and mechanisms of contraction including the sliding filament theory.
- Assess the role of nutrition, hydration, and body composition in exercise performance and health.
- Interpret short-term and long-term physiological changes due to exercise and apply them to improve physical fitness.

Learning Outcomes

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

- Define key terms related to exercise physiology, muscle function, and nutrition.
- Explain physiological responses and adaptations of the body to exercise.
- Apply knowledge of exercise effects to enhance fitness and performance.
- Differentiate between acute and chronic physiological changes due to exercise.
- Assess the importance of nutrition, body composition, and fitness components in sports performance.
- Design basic exercise and nutrition strategies to improve health-related physical fitness

Unit 1- Introduction to Exercise Physiology -Meaning and definition of Exercise Physiology, Importance of Exercise in Physical Education.

Unit 2- Effect Of Exercise On Human Body System: Effect of exercise on: Muscular system, Circulatory system, Respiratory system. Nervous system, Digestive system. Muscular System -Types of muscles (skeletal, smooth, cardiac) Muscle structure and function Muscle contraction mechanism

Unit 3- Muscular Contraction and Exercise: Properties and composition of voluntary muscles. Minute structure of voluntary muscle. Sliding Filament theory of muscular Contraction- Conditions affecting muscular contraction.

Unit 4- Functional Adaptations to Exercise Hormonal control during exercise - Exercise and neuromuscular system - Cardio-respiratory changes - Effects of exercise and training on health and fitness

Unit 5- Physiological Changes Due to Exercise - Short-term (acute) effects: Increased heart rate, Breathing rate, Body temperature, Long-term (chronic) effects, Respiratory & Cardiovascular effects

Reference Books:

1.W. Larry Kenney, Jack H. Wilmore, David L. Costill, 2012, Physiology of Sports and Exercises.
2.Robert A. Robergs, Scott O. Roberts, 2000, Fundamental Principles of Exercise Physiology for Fitness, Performance, and Health.
3.Larry G. Shaver, 1982, Essentials of Exercise Physiology
4.Dr. Sandhya Tiwari, 2006, Exercise Physiology
5.M. Dena Gardiner, 1985, The Principles of Exercise Therapy.
6.Edward L. Fox, Richard W. Bowers, Merle L. Foss, 1981, The Physiological Basis of
7.Physical Education and Athletics.
8. Michael S. Bahrke, Charles E. Yesalis, 2002, Performance – Enhancing Substances in Sport and Exercises.
9.David,LCostill.(2004).Physiology of sports and Exercise. New Jersey: Human Kinetics