



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Paramedical Science
Choice-Based Credit System (CBCS) in Light of NEP-2020
General Electives (UG) V SEM

Subject Code	Category	Subject Name	Teaching and Evaluation Scheme								
			Theory			Practical		L	T	P	CREDITS
			End Sem University Exam	Two Term Exam	Teacher's Assessment	End Sem University Exam	Teacher's Assessment				
GUPHY501	GE	Basics Of Exercises	60	20	20	-	-	4	0	0	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *

Teacher Assessment shall be based on the following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will:

CEOs 1: Understand the basic principles of exercise science.

CEOs 2: Learn the role of exercise in promoting health and physical fitness.

Course Outcomes (COs): Students should be able to:

COs 1: Know the general principles of Exercises.

COs 2: Develop understanding of health and disease.

COs 3: Learn the application of exercises for healthy life.

Contents:

Unit 1: Introduction to Exercise Science and Physiology

- Definition and scope of exercise science
- Key Concepts -Physical Fitness, Performance, and Health
- Overview of the Body's Systems Involved in Exercise: Muscular, Cardiovascular, Respiratory
- Understanding the Role of Exercise in Health and Disease Prevention

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Unit 2: Types of Exercise

- Aerobic Exercise: Examples (Walking, Running, Cycling), Benefits, and Physiological Effects
- Anaerobic Exercise: Examples (Weightlifting, Sprinting, HIIT), Benefits, and Physiological Effects
- Flexibility and Mobility Exercises: Benefits for Joint Health and Injury Prevention
- Neuromotor Exercise: Importance of Balance, Coordination, and Stability (e.g., Yoga, Pilates)

Unit 3: Muscular System and Exercise Physiology

- Muscle Structure and Types of Muscle Fibers (Type I, Type II)
- Muscle Contraction Mechanisms (Sliding Filament Theory)
- Effects of Exercise on Muscular Strength and Endurance
- Muscular Adaptations to Regular Exercise (Hypertrophy, Endurance, Fatigue)

Unit 4: Cardiovascular and Respiratory Responses to Exercise

- Cardiovascular Responses to Exercise: Heart Rate, Stroke Volume, and Cardiac Output
- Respiratory Responses: Oxygen Uptake (VO₂), Pulmonary Ventilation
- Long-Term Adaptations to Aerobic Exercise (e.g., improved VO₂ max, lower resting heart rate)
- Impact of Exercise on Blood Pressure and Circulation

Unit 5: Recovery, Adaptations, and Training Principles

- The Importance of Recovery in Exercise Physiology: Active vs. Passive Recovery
- Hormonal and Metabolic Adaptations to Training: Role of Growth Hormone, Cortisol, Insulin
- Principles of Training: Overload, Progression, Specificity, and Recovery
- Nutrition and Hydration for Exercise Recovery

Suggested Books:

1. Exercise Physiology: Theory and Application to Fitness and Performance by Scott K. Powers and Edward T. Howley.
2. Essentials of Exercise Physiology by William D. McArdle, Frank I. Katch, Victor L. Katch.
3. Exercise Physiology: Human Bioenergetics and Its Applications by George A. Brooks, Thomas D. Fahey, Kenneth M. Baldwin.
4. Physiology of Sport and Exercise by W. Larry Kenney, Jack Wilmore, David L. Costill.
5. Nutritional Supplements in Sports and Exercise by Kerry K. Kuehl

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