

3rd Semester Subject: Health & Physical Education

(According to NEP2020 implemented from Session 2024 – 25 (IIHS from session 2023-24))

Core Course – 3 & Major Core Course - 4

Part A - Introduction			
Subject:	Health & Physical Education		
Semester	3 rd Semester		
Name of the Course	Exercise Physiology		
Course Code	B23-PED-301		
Course Type:	Core Course - 3 Major Core Course - 4		
Level of the Course	100 - 199		
Pre-requisite (if any)	Candidate who has opted Physical Education as Major		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: 1. Describe the Exercise Physiology, Body Composition and types of muscle contractions 2. Explain the effect of exercise on the various aspects of Skelton muscles 3. Illustrate the effects of various aspects of circulatory system 4. Tell the various Effects of exercise on the various capacities and volumes of lung. 5. Know the basic specifications of court/ground, general rules and demonstrate the basic skills of Football and Boxing/Wrestling/Judo		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3 hours per week	2 hours per week (Size of practical group = 20 students)	5
Max. Marks: 100 Part I - Theory = 70 (Internal Assessment - 20 Marks + End Term Exam – 50 Marks) Part II - Practical = 30 (Internal Assessment - 10 Marks + End Term Exam – 20 Marks)			Time: 3 Hours For End Term Exam
Part B- Content of the Course			
<u>Instructions for Paper- Setter:</u> The question paper will consist of five Units I, II, III, IV and V. Units I, II, III & IV will have two questions from their respective Units of the Syllabus and will carry 10 marks each. Unit V th will consist of 5 short answer type questions, which will cover the entire syllabus and will carry 2 marks for each question..			
Unit	Topics		Contact Hours
I	Introduction of Exercise Physiology • Meaning of Exercise Physiology, Anabolism, Catabolism and Metabolism • Importance of Exercise Physiology in Physical Education • Types of muscular Contractions: Isometric, Isotonic and Isokinetic • Meaning of Body Composition, Components of Body Composition • Effect of Exercises on the body composition.		11

II	Muscular System and Exercise - Gross Structure of the Skeletal Muscle - Functions of Muscular system - Properties of slow-twitch and fast-twitch muscle fibers - Meaning of Aerobic Activity, Anaerobic Activity, Muscle Tone, Muscle Hypertrophy and Atrophy. - Effect of exercises and training on the muscular system	11
III	Cardiovascular System and Exercise - Meaning and functions of Cardiovascular System - Meaning of Stroke Volume, Cardiac Output, Heart Rate, Blood pressure and Cardiac Hypertrophy - Conduction System of the Heart - Blood circulation in the Heart, Blood Supply to the Heart - Effect of exercises and training on the Cardio vascular system.	12
IV	Respiratory System and Exercise: - Meaning of Lung Volumes: Inspiratory Reserve Volume, Expiratory reserve volume, Tidal Volume and Residual Volume - Meaning of Lung capacities: Total Lung Capacity, Inspiratory Capacity, Vital Capacity and Functional Residual Capacity. - Mechanism of Breathing - Diffusion of Gases: Exchange of Gases in the Lungs and Exchange of Gases in the Tissues - Effect of exercises and training on the respiratory system.	11

Suggested Evaluation Methods:

Maximum Marks: 70 (Internal Assessment - 20 Marks + End Term Exam – 50 Marks)

Internal Assessment:

Continuous Comprehensive Evaluation (CCE): 20 Marks
 Class presentation = 5
 Seminar/ Assignment/Quiz/class test, etc. = 5
 Mid Term Test = 10

End Term Exam: 50 Marks Time = 3 hrs.

One question of 10 marks from each Units I to IV = 40 Marks.
 Five Questions short answer from entire syllabus = 5 × 2 Marks = 10 Marks.

Part II – Practical (Internal Assessment - 10 Marks + External – 20 Marks)

Unit	Topics	Marks distribution	Contact Hours
I	Football: Court specifications, general rules and basic skills	15 Marks	15
II	Wrestling/Judo/Boxing: Ring/Mat specifications, general rules and basic skills	15 Marks	15
	Internal Assessment: 10 Marks Evaluation through Skill Test/ Assignments/ Quiz/ Viva Voce/ Practical Record File (5 Marks for Each Sports/Game)	University Exam (UE): 20 Marks Evaluation through performance in Skill Test/ Demonstration/ Viva Voce/ Practical Record File (10 Marks for Each Sports/Game)	

Part C-Learning Resources

- Clarke, D.H. (1975). Exercise Physiology. New Jersey: Prentice Hall Inc., Englewood Cliffs.
- David, L Costill. (2004). Physiology of Sports and Exercise. Human Kinetics.
- SandhyaTiwaji. (1999). Exercise Physiology. Sports Publishers.
- Fox, E.L., and Mathews, D.K. (1981). The Physiological Basis of Physical Education and Athletics.

Philadelphia: Sanders College Publishing.

- Guyton, A.C. (1976). Textbook of Medical Physiology. Philadelphia: W.B. Sanders co.
- Richard, W. Bowers. (1989). Sports Physiology. WMC: Brown Publishers.
- Shaver, L. (1981). Essentials of Exercise Physiology. New Delhi: Subject Publications.
- Vincent, T. Murche. (2007). Elementary Physiology. Hyderabad: Sports Publication.
- William, D. McAradle. (1996). Exercise Physiology, Energy, Nutrition and Human Performance. Philadelphia: Lippincott Williams and Wilkins Company.
- Anand, R.L (1987) Play Field Manual, Patiala: NIS Publication.
- N Kumar (2003). Play and Learn Football. K.S.K. New Delhi.
- Sharma OP (2001). Teaching and Coaching –Football. Khel S.K. Delhi.
- N Kumar (2003). Play and Learn Football. K.S.K. New Delhi.