

SEMESTER-II

B.A. (Prog.) with Physical Education as a Major

DISCIPLINE B2-(4): B.A.-PE-DSC-2-(4)-EXERCISE PHYSIOLOGY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DISCIPLINE B2-(4): B.A.-PE-DSC-2(4)- EXERCISE PHYSIOLOGY	4	3	0	1	Class XII pass	NIL

Learning Objective: The learner will acquire knowledge and understanding with applications and skills (field and laboratory) in exercise physiology.

Learning Outcomes:

1. The learners will be able to understand the physiological basis of physical activities and functioning. The learners will attain knowledge, understanding, ability of interpreting the concepts and practices in exercise physiology.
2. The learners will learn the changes/adaptations in body systems in response to exercise & training. Such core knowledge and skill will help to create a strong foundation to engage human subject of all ages, sex for exercise, health, fitness, sports performance. The learner will be able to correlate, compare and analyze the cause (exercise) and effect (physiological changes) for best practices.
3. The learners will be able to understand the concept of exercise physiology and its significance in the field of Physical Education & Sports, acute physiological response, and chronic physiological adaptation.
4. The learners will also be able to correlate, compare and analyze the cause (exercise) and effect (physiological changes) for best practices in regard to above.

SYLLABUS

Credit: 4 (3 Theory, 1 Practical)

Theory: 45 Hours

Practical: 30 Hours

PART-A: THEORY

Unit-1: Exercise Physiology and Skeletal System (11 Hours)

1. Meaning and Importance of Exercise Physiology.
2. Effect of Exercise on Skeletal System and Different Types of Movement around the Joints.

Unit-2: Cardiovascular and Respiratory System (11 Hours)

1. Effect of Exercise on Cardiovascular System.: Stroke volume, Blood Volume, Blood Pressure, Its Maintenance and Regulation; Cardiac Output, Cardiac Hypertrophy, Redistribution of Blood during Exercise, Heart Rate.
2. Effect of Exercise on Respiratory System: Pulmonary Ventilation, Vital Capacity, Tidal Volume, Minute Volume, Residual Volume, Breathing Rate, Lung Capacity, oxygen uptake, VO₂max, Respiratory volume Aerobic and Anaerobic Threshold

Unit-3: Muscular, Digestive and Excretory System (12 Hours)

1. Effects of Exercise on Muscular System, Types of Muscular Contraction, Sliding Filament Theory (Physical)
2. Effect of Exercise on Digestive System: Secretion and Function of the Digestive Juices; Functions of Liver; Absorption of Food; Metabolism, Metabolism of Carbohydrates, Fats, and Proteins
3. Effect of Exercise on Excretory System: Urinary System

Unit-4: Nervous and Endocrine Systems (11 Hours)

1. Effect of Exercise on Nervous System: Central Nervous System, Sensory Nervous System, Autonomic Nervous System
2. Effect of Exercise on Endocrine System: Secretion of Endocrine Glands (Pituitary, Thyroid, Adrenal & Pancreas); Role of their secretion in Growth, Development and Body Functions.

PART-B: PRACTICALS (30 Hours)

1. Measurement of exercise Respiratory/breathing Rate
2. Measurement of exercise heart rate/pulse rate
3. Measurement of exercise blood pressure.
4. Demonstration of different movements at different joints.

Marking Scheme:

Theory Written Exam	:	90 Marks
Internal Assessment	:	30 Marks
Practical	:	40 Marks

Suggested Readings:

1. Jain, A.K. (2002), Anatomy & Physiology for Nurses. Arya Publishers, Delhi.
2. Koley, Shyamal (2007), Exercise Physiology – A Basic Approach. New Delhi: Friends Publications.
3. Kumari, Sheela, S.; Rana, Amita; and Kaushik, Seema (2008), Fitness, Aerobics and Gym Operations. New Delhi: Khel Sahitya Kendra.
4. Moried, E.N.(2007), Essentials of Human Anatomy & Physiology. Ed.8th Dorling Kindersley, India.
5. Prives, M. and others (2004), Human Anatomy Vol. I & II Paragon, Delhi.
6. Seeley & others (2008), Anatomy & Physiology. McGraw Hill, Boston.
7. Tortora (2003), Principles of Anatomy & Physiology, NewYork: John Willy & Sons.
8. William, C.S. (2000), Essentials of Human Anatomy & Physiology, Benjamin.
9. Wilson and Waugh (1996), Anatomy & Physiology in Health & Illness. Churchill Livingstone.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.