MPD-C102 PHYSIOLOGY OF EXERCISE

The Course learning outcomes (COs): On completion of the two years M.P.Ed., program, the students will be learning and able to do/perform the following…….
CO-1. Defining the concept of exercise physiology.
CO-2. Describing the mechanism of muscular contraction, energy sources and drugs.
CO-3. Generalizing the mechanism of Respiratory System and Exercise
CO-4. Interpreting the knowledge of exercises for developing various body systems.
CO-5. Predicting the concept of exercise for climatic conditions.

UNIT I – Skeletal Muscles and Exercise
Structure of the Skeletal Muscle Chemical Composition.
Sliding Filament theory of Muscular Contraction.
Types of Muscle fibre, Muscle Tone, Effect of exercises and training on the muscular system.

UNIT II – Cardiovascular System and Exercise
Heart Valves and Direction of the Blood Flow
Conduction System of the Heart
Blood Supply to the Heart
Cardiac Cycle, Stroke Volume, Cardiac Output, Heart Rate
Factors Affecting Heart Rate, Cardiac Hypertrophy
Effect of exercises and training on the Cardio vascular system.

UNIT III – Respiratory System and Exercise
Mechanics of Breathing – Respiratory Muscles, Minute Ventilation –
Ventilation at Rest and During Exercise.
Diffusion of Gases – Exchange of Gases in the Lungs –Exchange of Gases in the Tissues.
Oxygen Debt – Lung Volumes and Capacities –
Effect of exercises and training on the respiratory system.

UNIT IV – Metabolism, Energy Transfer and Climatic conditions and sports performance
Metabolism – ATP – PC or Phosphogen System
Anaerobic Metabolism, Aerobic Metabolism –
Aerobic and Anaerobic Systems during Rest and Exercise.
Variation in Temperature and Humidity, Thermoregulation, Sports performance in hot climate, Cool Climate, high altitude.

Reference: Amrit Kumar, R, Moses. (1995). Introduction to Exercise Physiology. Madras: PoompugarPathipagam.
BeotraAlka, (2000) Drug Education Handbook on Drug Abuse in Sports: Sports Authority of India Delhi.
Clarke, D.H. (1975). Exercise Physiology. New Jersey: Prentice Hall Inc., Englewood Cliffs.
David, L Costill. (2004). Physiology of Sports and Exercise.Human Kinetics.
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.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO 1								
CO 2								
CO 3								
CO 4								
CO 5								