Subject Code : ECSPEA

SPORTS BIO-MECHANICS

UNIT I

Meaning and Definition – Aim, Need and Importance of Bio-Mechanics in the field of Physical Education and Sports –Types of motion-linear and angular motion – Friction – air and water resistance.

UNIT II

Linear Kinematics-Distance and Displacement, Speed, Velocity and Acceleration and Projectile- Angular Kinematics- Angular distance and Displacement, Angular speed, Velocity and acceleration.

UNIT III

Center of Gravity Equilibrium - Stages of equilibrium-Factors affecting-equilibrium. Centrifugal and Centripetal, Force-Direction-angle, Point of application - Lever - Principles and its types-Mechanical Advantage-Application of Levers in Physical Education & Sports.

UNIT IV

Inertia-Mass and weight - Force-Factors affecting force-Types of force –Work, Power and Energy-Impact and Elasticity –Newton's Law of motion.

UNIT V

Use of the above scientific principles in: Track and Field events – Running, Throwing, Jumping – Basketball, Football, Volleyball.

Books for Reference

1. Greire millor, Paul & smith, Techniques for the analysis of Human movement lapse books London 1975.
2. Bunn John W "Scientific Principles of coaching".
3. Charles "Fundamentals of sports Bio-Mechanics Techniques.
4. Hay, James G "The Biomechanics of sports.
5. T.Mc Clurg Anderson Bio Mechanics of Human Motion