PHED 3200: Introduction to Sport Biomechanics

A. COURSE DESCRIPTION
   Credits: 3
   Lecture Hours/Week: *.*
   Lab Hours/Week: *.*
   OJT Hours/Week: *.*
   Prerequisites: None
   Corequisites: None
   MnTC Goals: None
   Introduction to biomechanical concepts and principles. Application of these principles to evaluating and improving performance in physical activities. Introduction to methods for qualitative movement analysis. Prerequisite: BIOL 2110 and PHED 3100 or consent of instructor.

B. COURSE EFFECTIVE DATES: 05/18/2001 - Present

C. OUTLINE OF MAJOR CONTENT AREAS
   1. Friction
   2. Anatomical System for Describing Limb Motion
   3. Angular Kinematics
   4. Basic Mathematics: Solution of Equations, Trigonometric Functions
   5. Buoyancy, Flotation & Swimming Techniques
   6. Center of gravity
   7. Classifying forces. Vectors & Scalars, Vector Addition, Vector Resolution, & Equilibrium
   8. Direct Impact & Oblique Impact
   9. Fluid Mechanics
   10. Forms of Motion
   12. Linear Kinematics: Position, Distance & Displacement, Speed & Velocity, Acceleration
   13. Linear Kinetics: Inertia, Mass, Newton’s 1st law of motion, Newton’s law of gravitation, Momentum
   14. Projectile Motion
   15. Torque & Moment: Eccentric Force, Couple, Moment, Resultant Moment, & Equilibrium
   16. Work, Power, & Energy

D. LEARNING OUTCOMES (General)
   1. acquire an appreciation on how these mechanical principles apply to improving performance in selected physical activities.
   2. acquire an understanding of the basic mechanical principles involved in sports.
   3. develop the ability to transfer the knowledge to other physical activities not discussed.
E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   None

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted