Course Outline

1. Introduction
   (a) What is Kinematics?
   (b) What are Linkages, Mechanisms, Machines?
   (c) What are the objectives of this class?
   (d) Review of Basics of Motion
2. Instant Centers of Rotation
   (a) Uses of I.C.'s
   (b) Primary
   (c) Secondary
   (d) Kennedy's Theorem
   (e) Method for Finding I.C.'s
3. Velocities in Linkages
   (a) Rotation of Radii
   (b) Components
   (c) Relative Velocities
   (d) Velocity Images
4. Accelerations in Linkages
   (a) Normal & Tanjential
   (b) Coriolis
   (c) Acceleration Images
5. Complex Number Analysis
   (a) Review of Complex Numbers
   (b) Velocities
   (c) Accelerations
6. Cams
   (a) Displacement, Velocity, Acceleration, Jerk ...
   (b) Cycloids
   (c) Construction of Cam Profiles

7. Gears
    (a) Nomenclature
    (b) Fundamental Law of Gearing
    (c) Tooth Forms: Involute
    (d) Pressure Angle
    (e) Types of Gears
8. Gear Trains
    (a) Simple
    (b) Compound
    (c) Epicyclic
9. Kinematic Synthesis
    (a) Precision Points
    (b) Dyad Form
    (c) Path Generation
    (d) Spherical Kinematics