## ROSE-HULMAN INSTITUTE OF TECHNOLOGY

## Department of Mechanical Engineering

ES 204 Mechanical Systems Kinetics Conservation Principle: Rate form of conservation of Finite time form of Finite time for of conservation of linear and angular momentum linear and angular momentum conservation of energy Clues as to when to use: - want to find forces and/or - have two locations in space have an impact or impulsive accelerations forces - want to find velocities, - want to find velocities and/or distances, and sometimes - are considering several objects distance traveled (which can be forces that are interacting found by separating variables and integrating the kinematic - given a force as a function of - given force as a function of time relationships for a or  $\alpha$ ). displacement - want to find velocities, times, forces (especially impulsive forces) Procedure: Define the system Define the system Define the system Draw FBD and KD Draw system in two locations Draw Impulse-Momentum Define a coordinate system Define a coordinate system diagrams Define a coordinate system Apply the principle Apply the principle Check to make sure there are Check to make sure there are Apply the principle Check to make sure there are enough equations enough equations enough equations

Written by P. Cornwell

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