

Topic

Principle of Work and Energy

Governing Equations and Assumptions

$$\frac{1}{2}mv_1^2 + \sum U_{1-2} = \frac{1}{2}mv_2^2 \quad T = \frac{1}{2}mv^2$$

$$U_{1-2} = \int_{s_1}^{s_2} F \cos \theta ds$$

$$U_{1-2} = \frac{1}{2}ks_2^2 - \frac{1}{2}ks_1^2$$

Kinematics

Process

- ① Draw the FBD
- ② Determine the work
=> Identify the forces doing work
- ③ Determine the Kinetic Energy
- ④ Apply the Principle of Work and Energy