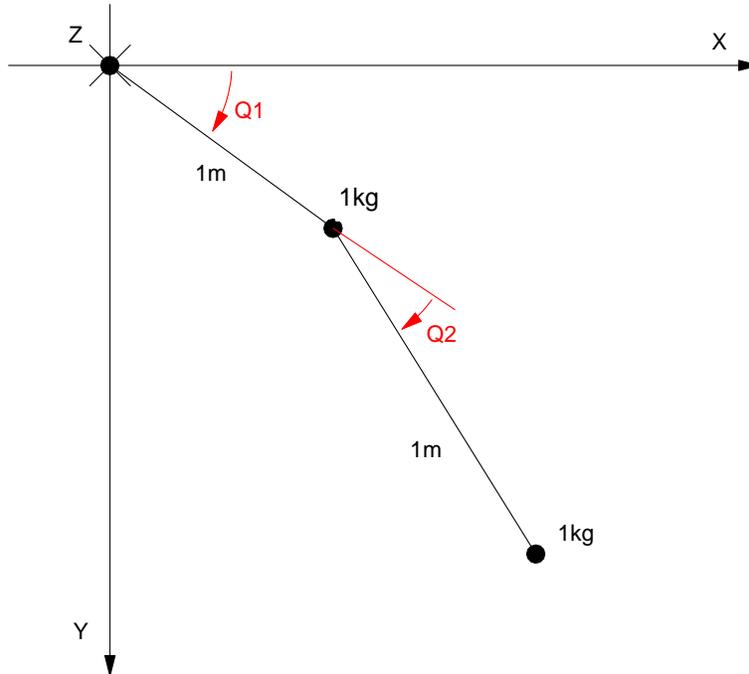


ECE 761 - Homework #10

LaGrangian Dynamics

A 2-link robotic arm has masses of 1kg and 1kg and link lengths of 1m. Gravity is in the +Y direction.



- 1) Determine the potential energy of this system
- 2) Determine the kinetic energy of this system.
- 3) Determine the dynamics of this system relative to link 1:

$$L = KE - PE$$

$$T_1 = \frac{d}{dt} \left(\frac{\partial L}{\partial \dot{\theta}_1} \right) - \left(\frac{\partial L}{\partial \theta_1} \right)$$

- 4) Determine the dynamics of this system relative to link 2:

$$T_2 = \frac{d}{dt} \left(\frac{\partial L}{\partial \dot{\theta}_2} \right) - \left(\frac{\partial L}{\partial \theta_2} \right)$$