MECH 7610: Advanced Dynamics

SPRING 2020

Homework Assignment #1

Given: a uniform slender rod of length, L, and mass, m. The rod lies in the vertical plane and is constrained by a smooth pin at one end.

1. Determine the number of degrees of freedom of this system.

2. Write expressions for the kinetic and potential energy of this system.

3. Draw the free body diagram for this system.

4. Formulate the equation(s) of motion using Newton's Second Law

5. Formulate the equation(s) of motion using Lagrange's equations

This assignment is due Tuesday, January 14, 2020

No standard format for the problem solutions is required. However, you should present your assignments in a neat, organized manner with your answers clearly marked.

No credit will be given for late homework.