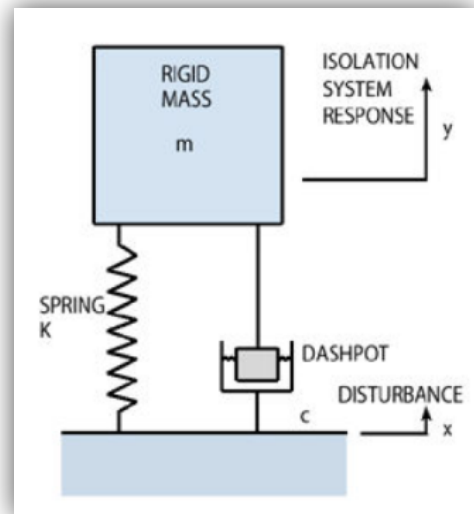


MECH463: ADAMS Assignment One

Assignment One - Summary

The primary objective of the tutorial was to model the behaviour of a SDOF spring-mass-damper system subject (see right) to a step change of position of a reference body. The model was constructed in ADAMS, which is a powerful software for modeling and analyzing the dynamics and vibration of complex mechanism. The response was examined over a five second time interval. The steps taken to generate the model are listed below and were given to students during this tutorial:



1. Create a block (**Block 1**) and set its mass to be 10 kg. Set the mass moments of inertia to zero.
2. Reposition Block 1 so that its centre of mass is the absolute origin of the model space.
3. Create a translational joint at the centre of the Block 1, oriented along the vertical axis.
4. Create a second block (**Block 2**) a distance below Block 1. This is the base.
5. Reposition the x and z-coordinates of Block 2 so that its centre of mass lies directly below Block 1.
6. Create a translational joint (**Joint 2**) at the centre of the Block 1, oriented along the vertical axis.
 - a. Specify the motion of Block 2 by modifying the *Impose Motion(s)* field of Joint 2.
 - b. Select `disp(time)` under "Tra Z" and input a step function as `'STEP(time , 0, 0, 0.05, 100)'`
7. Add a spring through the 'Force' toolbox. Connect the ends to the centers of mass for each block.
8. Modify the spring to have a constant stiffness of $k = 1 \text{ N/mm}$ and a constant damping coefficient of $c = 0.01 \text{ (N s)/mm}$.

After completing these steps, the simulation was carried out for 5 seconds with 500 steps. The data was processed in the built in post processor and the results have been included in the next section.

Assignment One – Results

The following are visual outputs for the Assignment 1 of the ADAMS Tutorial for MECH463. They were obtained given the steps from Page 1, and a screenshot was taken from the ADAMS output afterwards.

