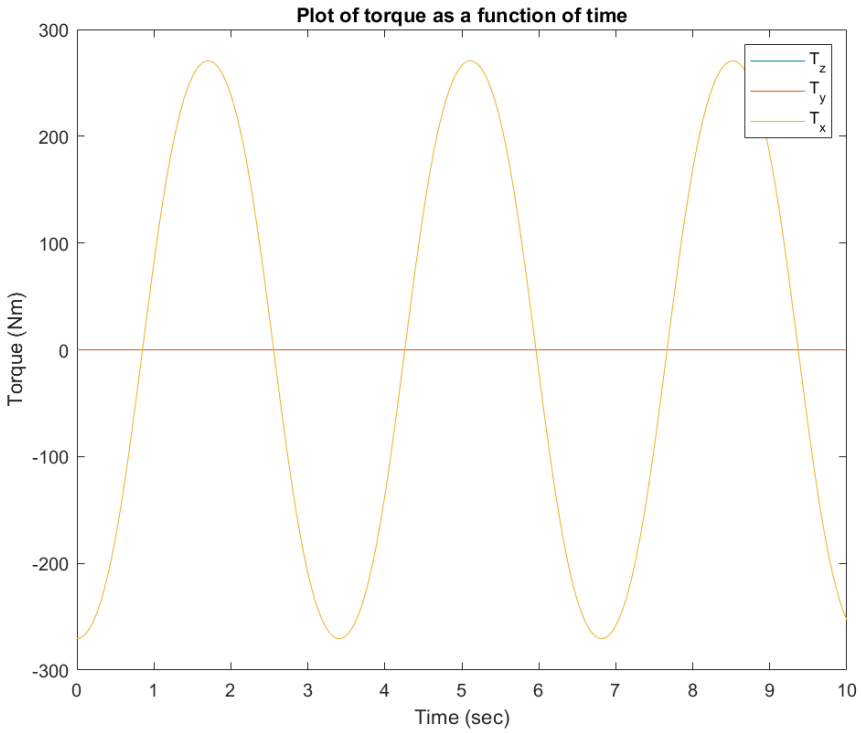
Assignment 8

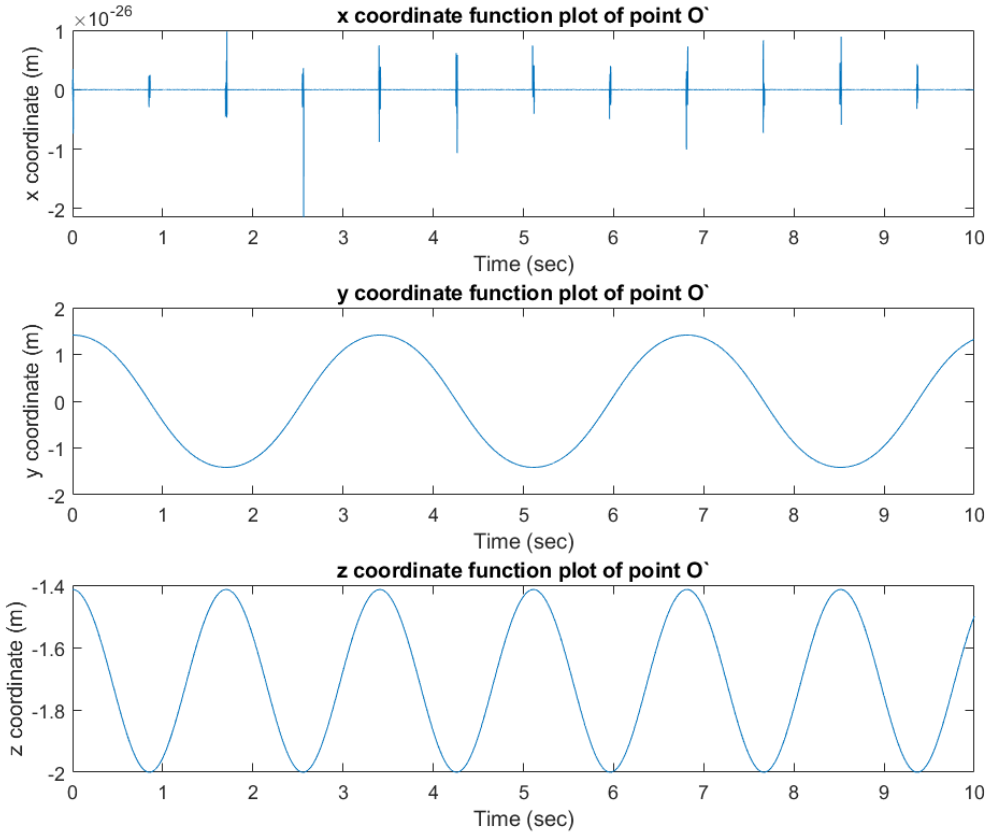
Problem 1.

To perform the dynamics analysis, please run the MATLAB file “simEngine3D_A8P1.m”.

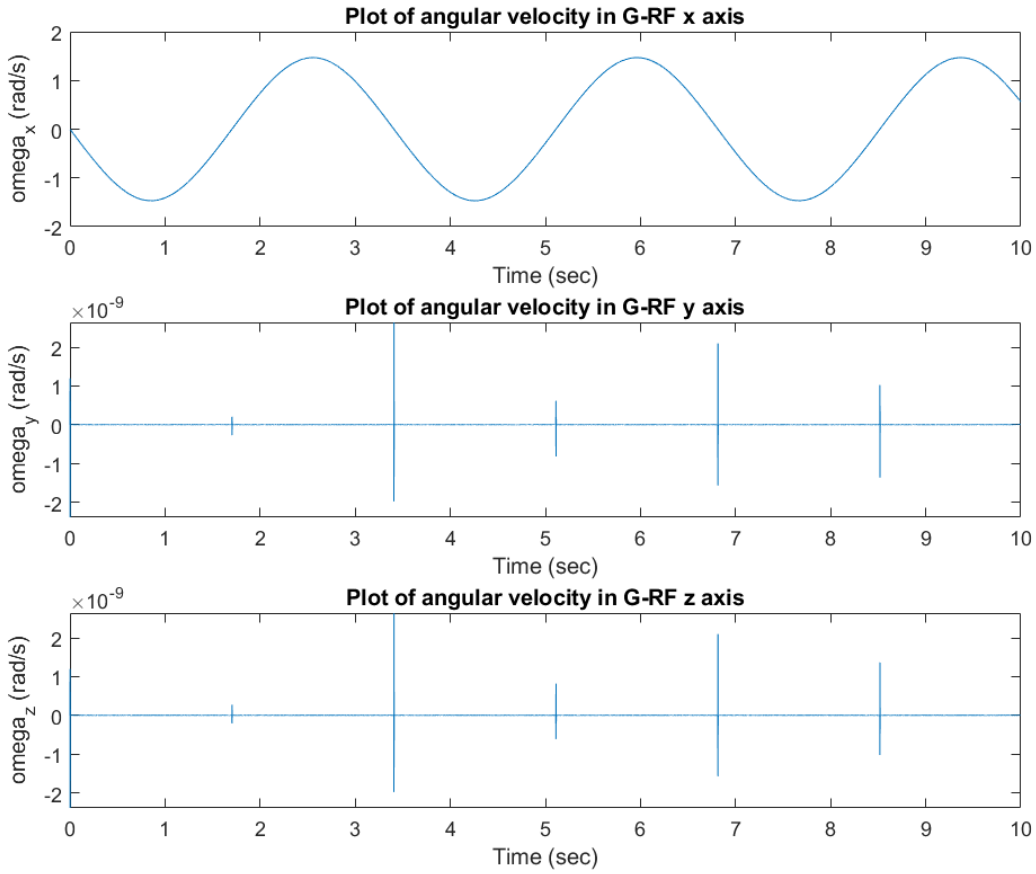
(a) The plot that displays the value of the torque:



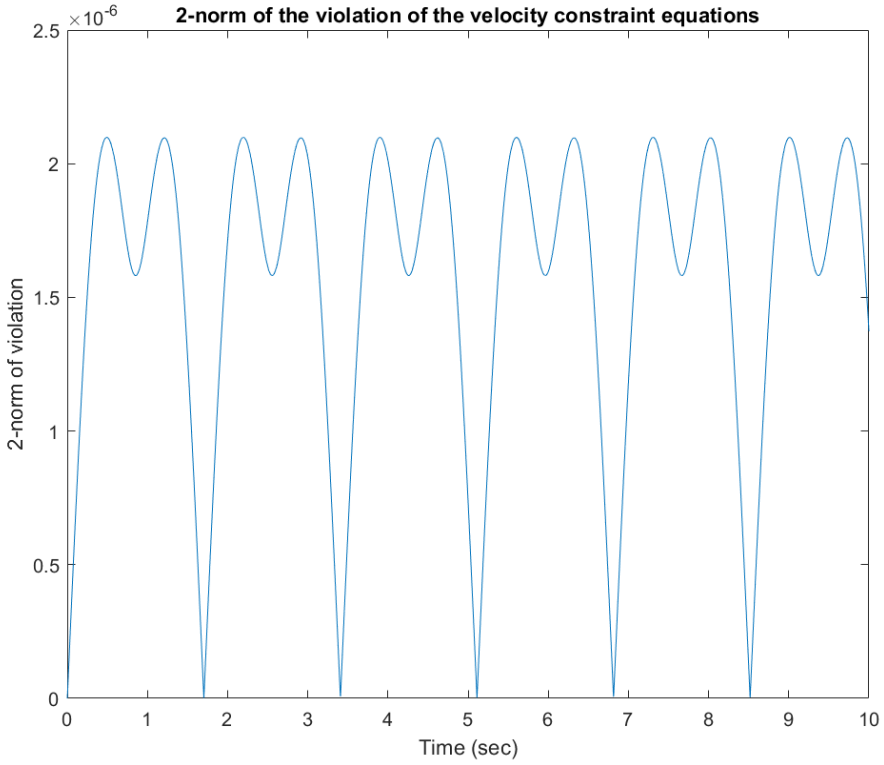
(b) Three plots display the x, y, and z coordinates of Body 1's point O’ expressed in the G-RF as a function of time:



Three plots will show the angular velocity of Body 1 in the G-RF as a function of time:



Plot displays the 2-norm of the violation of the velocity constraint equations for the revolute joint between Body 1 and ground:

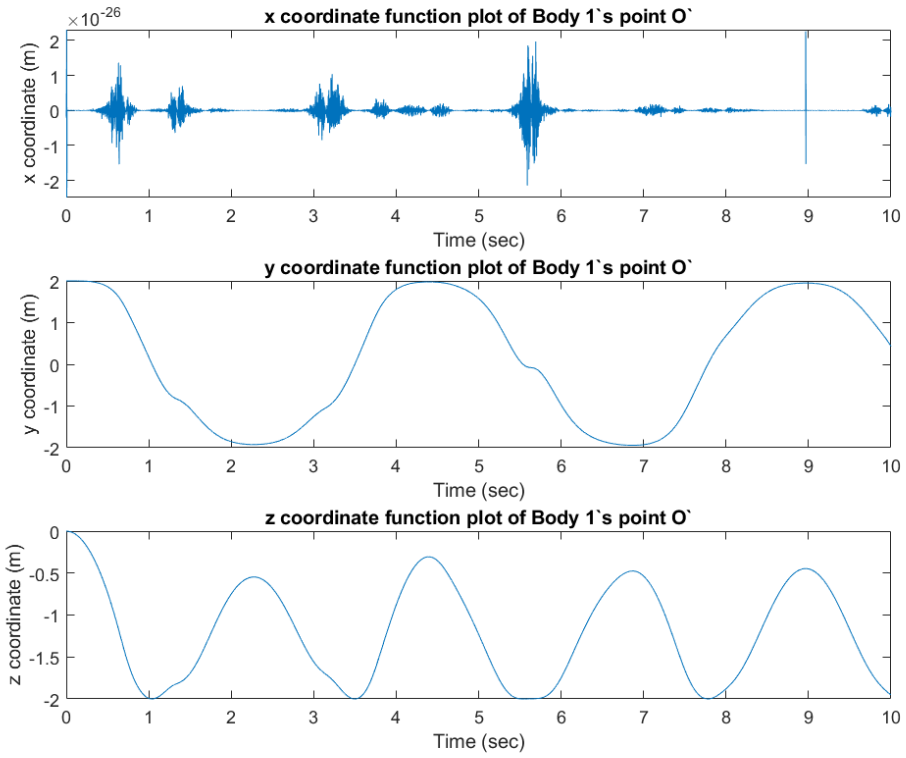


(c) Simulation time: 57.93 sec. Step size: h =0.001.

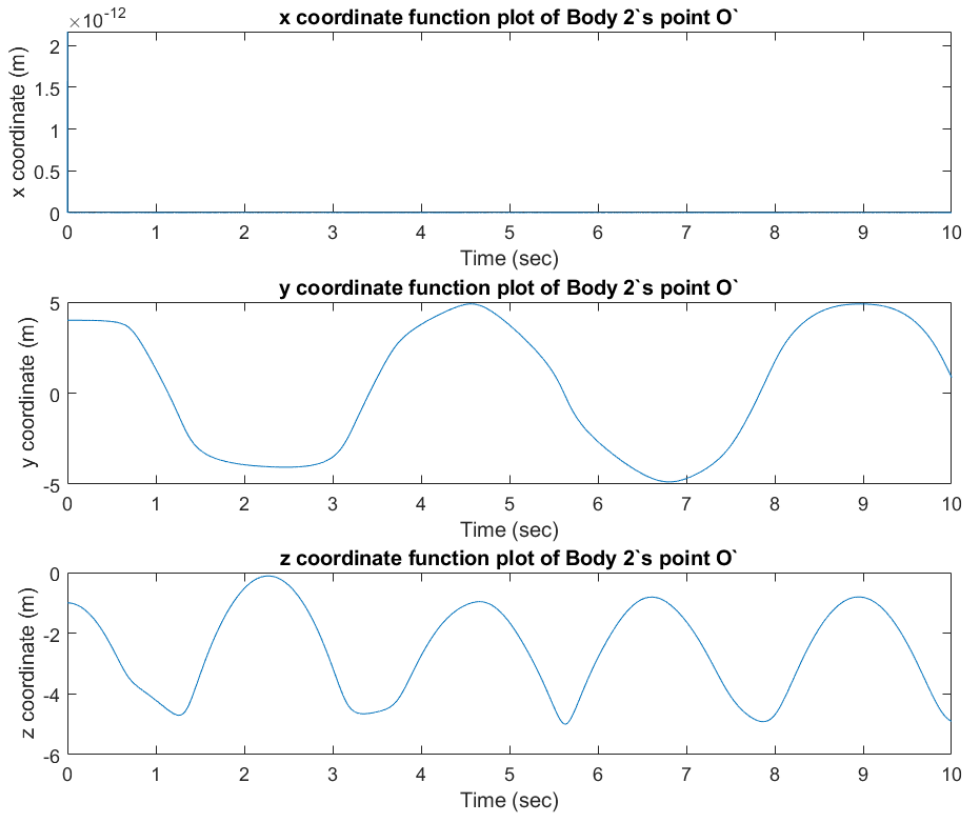
Problem 2.

To perform the dynamics analysis, please run the MATLAB file “simEngine3D_A8P2.m”.

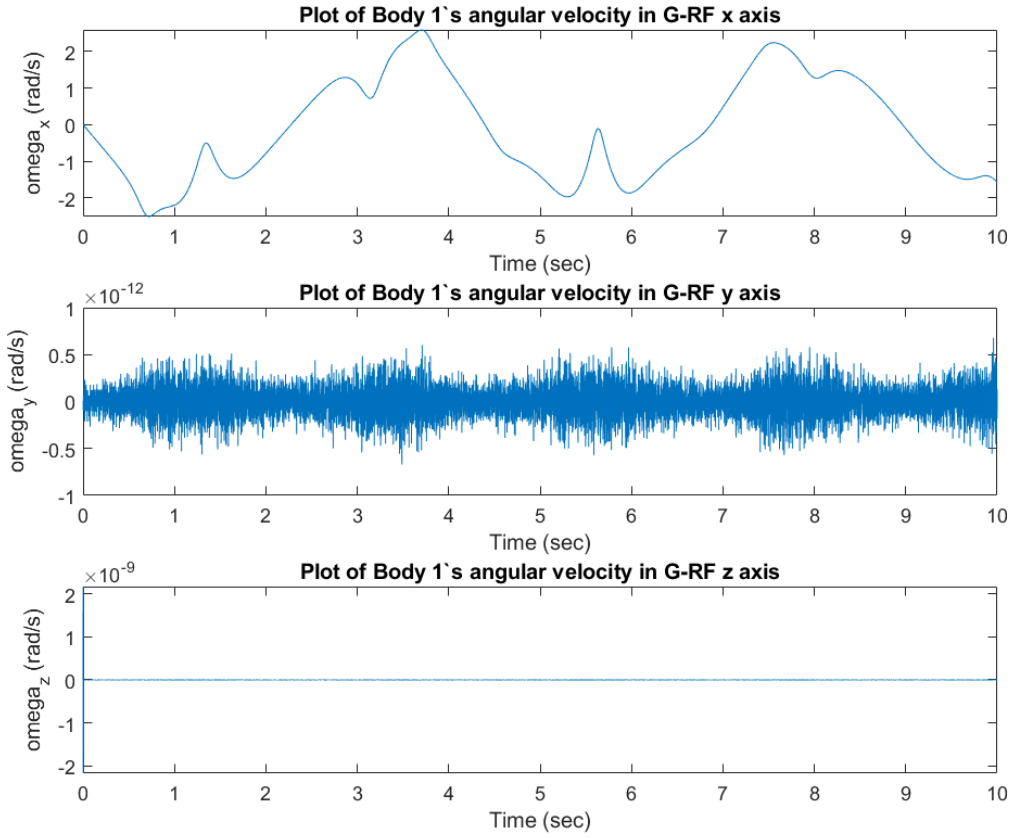
(1) Three plots display the x, y, and z coordinates of Body 1's point O’ expressed in the G-RF as a function of time:



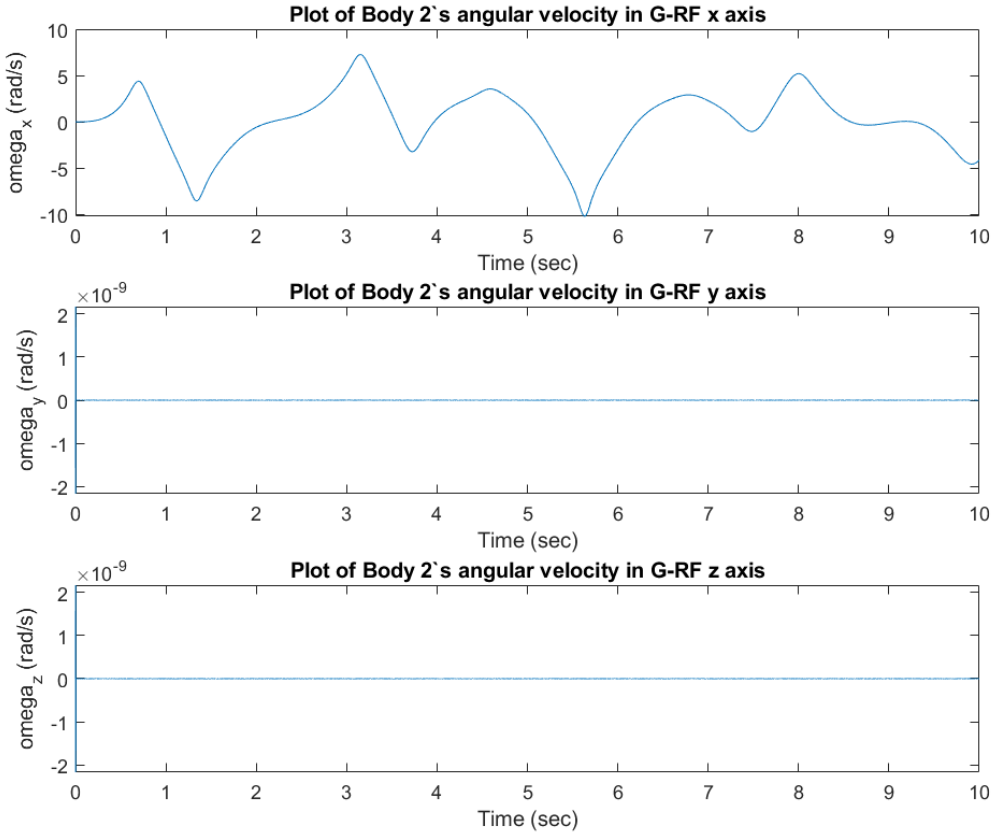
Three plots display the x, y, and z coordinates of Body 2's point O’ expressed in the G-RF as a function of time:



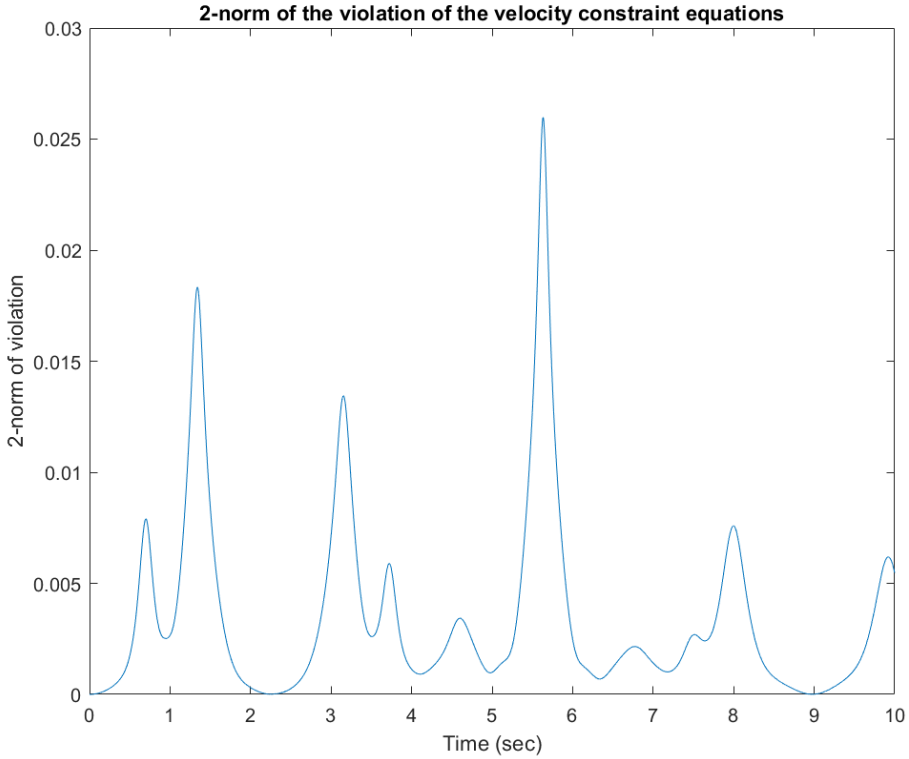
Three plots will show the angular velocity of Body 1 in the G-RF as a function of time:



Three plots will show the angular velocity of Body 2 in the G-RF as a function of time:



Plot displays the 2-norm of the violation of the velocity constraint equations for the revolute joint between Body 1 and Body 2:



(d) Simulation time: 174.22 sec. Step size: h =0.001.