**Homework - Wheeled Inverted Pendulum (WhIP)**

Add file saving functions to your code (e.g. whip112612.nxc). These functions should record the body angle [deg] and motor position [deg]. Referring to Exercise 1-1 to 1-4, provide plots of body angle and motor position over time and observations (e.g. steady-state value, rise-time, how shaky the WhIP acts, how much WhIP translates).

1. Briefly describe the impact of just changing the body integral gain KGYROANGLE. Support your description with 3 plots: one at a nominal KGYROANGLE (e.g. 7.5), one below and one above the nominal value (10 points)
2. Briefly describe the impact of just changing the body proportional gain KGYROSPEED. Support your description with 3 plots: one at a nominal KGYROSPEED (e.g. 1.15), one below and one above the nominal value (10 points)
3. Briefly describe the impact of just changing the motor proportional gain KPOS. Support your description with 3 plots: one at a nominal KPOS (e.g. 0.07), one below and one above the nominal value (10 points)
4. Briefly describe the impact of just changing the motor derivative gain KSPEED. Support your description with 3 plots: one at a nominal KSPEED (e.g. 0.1), one below and one above the nominal value (10 points)