Tutorial 2 --- Digital PID Controllers

1. A chemical plant uses PID control to regulate the temperature inside a heat chamber. The chamber is being feed with a steady stream of cool air from the outside. In order to maintain the temperature, heating filaments are installed in the chamber.

    (a)   Draw the possible configuration of this setup.
    (b)   List the specification requirements for the sensor, heater, and controller.
    (c)   If PID is used as the control algorithm, what is the main difficulty of such a setup?

2. Use a flow chart to describe a typical PID control routine.

3. A computer needs to perform two PID control loops with simultaneous inputs and outputs. Use a flow chart to explain how this can be done.