Problem Wk.5.5.1: Modeling the Conrolled/Sensor

Read the handout for Homework Assignment 2.

System Function

Enter the system function \overline{E} for the combined sensor/controller system below. Enter the numerator and denominator separately. You must enter them both (if the denominator is empty, enter a "1". The numerator and denominator do not need to exactly match our solution, but the ratio must be the same.

You can enter algebraic expressions in "standard" notation; the checker will try to turn your input into a valid Python expression. An example answer is something like:

2 (x + 3)

If you're having trouble with syntax, you can always type a legal Python expression, fully parenthesized and with all the operators, including * and **.

A few extra quick notes about syntax:

- These expressions are case-sensitive. A is not the same thing as a. Remember that, by convention, signals have capital letter names, and samples have lowercase letter names.
- To enter subscripts (e.g. *k*_s), use an underscore between the variable name and the subscript (e.g. k_s).
- To enter greek letters, just type the name of the letter. Note the difference between capital letters and lowercase letters. E.g., Delta becomes Δ , whereas delta becomes δ .
- Use a capital \mathbb{R} for the delay operator R.

As an example, here is a list of some of the variables defined in the handout, along with the ASCII representation you should enter to represent each variable in the tutor:

Variable	ASCII
k_s	k_s
k_m	k_m
k_b	k_b
r_m	r_m
k_c	k_c
Т	Т
Ω_h	Omega_h
Θ_h	Theta_h

Numerator:

Denominator:

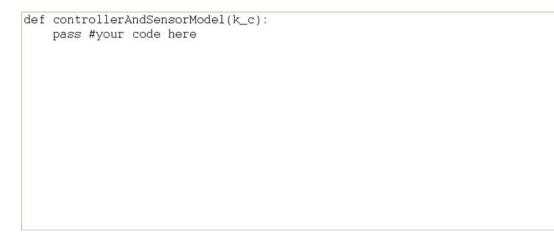
Block Diagram

Upload a PDF file containing your block diagram for this system. Please double-check that your file is a valid PDF before uploading. You will be able to check that the file is correctly uploaded.

Browse ... Upload File

Code

Enter your code for <code>controllerAndSensorModel</code> below. The global variables defined in <code>hw2Work.py</code> can be used in your definition; do not redefine them here. Your code may use functions from the <code>sf module</code>, such as <code>sf.Gain(...)</code>; no <code>import</code> statements should be needed.



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6.01SC Introduction to Electrical Engineering and Computer Science Spring 2011

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