

Hi All,

The following problem is homework 4.

Hw4

Consider a unity feedback control system with $G_c(s)=K$ and $R(s)=0$ for inverted pendulum (example 3.3) in textbook.

Analyze $C = [0,0,1,0], [0,0,1,1]$ and $[0,1,1,1]$ and different K .

- 1) use Simulink to simulate the output response for different K in s-domain.
- 2) use ode45 to simulate the output response for different K in time-domain.
- 3) Report should include the following:

****problem 1 : Screenshot the transfer function for each C**

Screenshot the plot at least 3 different K values

****problem 2 : Screenshot the plot at least 3 different K values**

****Analyze the different values of K for each C ($[0,0,1,0], [0,0,1,1]$ and $[0,1,1,1]$)**

For this homework, you should additionally submit a report including your analysis

Try to find the reason if you can't get the expected control goal.

Noticed:

For HW4, please submit three files:

1. Simulink.slx file (file name: HW4_StudentID.slx)

2. code.m file, (file name: HW4_StudentID.m)

3. result.pdf file (file name: HW4_NAME_StudentID.pdf)

Due date: 5/14

The following attachment is the reference for simulink

If you have any question, please contact TA asap.

I have update the new version of simulink ppt. Please Check!!

Best,

TA