E6225

All the assignment must submitted by

Due: Saturday, 19/10/2019.

Format: The solution must be submitted in word document by e-mail

Continious Assignment 2

Consider a temperature control problem of the three neighboring rooms for an ACMV system; the transfer function matrix is obtained by empirical modeling technique as:

$$G(s)=\begin{bmatrix} \frac{-0.098}{122s+1}e^{-17s} & \frac{-0.036}{149s+1}e^{-27s} & \frac{-0.014}{158s+1}e^{-32s} \\ \frac{-0.043}{147s+1}e^{-25s} & \frac{-0.092}{130s+1}e^{-16s} & \frac{-0.011}{156s+1}e^{-33s} \\ \frac{-0.012}{153s+1}e^{-31s} & \frac{-0.016}{151s+1}e^{-34s} & \frac{-0.102}{118s+1}e^{-16s} \end{bmatrix}$$

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Try to design following controllers using ETF and compare with the classical decentralized control based on BLT method

1. Decentralized control
2. Spases control
3. Decoupling control

Compare the performance for the control systems by simulating the closed-loop performances for step response $R_1(t)=1$ for $t>0$, $R_2(t)=1$ for $t>250$ and $R_3(t)=1$ for $t>500$.