

Control system lab report

1. Observation Of Unit Step Response Of First-Order System Using Matlab
2. Observation Of Unit Ramp Response Of First-Order System Using Matlab
3. Observation Of Unit Impulse Response Of First-Order System Using Matlab
4. Observation Of Unit Step Response Of First-Order System For Different Time Constant Using Matlab
5. Observation Of Unit Step Response Of A Second-Order System Using Matlab
6. Observation Of Impulse Response Of The System, $G(S) = \frac{1}{S^2+0.2S+1}$ Using Matlab
7. Observation Of Unit Step Response For The System

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} -1 & -1 \\ 6.5 & 0 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 1 & 1 \\ 1 & 0 \end{bmatrix} \begin{bmatrix} u_1 \\ u_2 \end{bmatrix}$$

$$\begin{bmatrix} y_1 \\ y_2 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix} \begin{bmatrix} u_1 \\ u_2 \end{bmatrix}$$

8. Observation Of Impulse Response Of The System, $G(S) = \frac{1}{S^2+0.2S+1}$

Using Unit Step Response

9. Observation Of Unit Step Response The System, $G(S) = \frac{25}{s^2+4s+25}$ Using Matlab
10. Observation Of Unit Step Response The System, $G(S) = \frac{25}{s^2+4s+25}$ Using Plot Command
11. Observation Of Unit Ramp Response The System, $G(S) = \frac{2s+1}{s^2+s+1}$ Using Matlab.
12. Observation Of Unit Step Response For The System

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} -1 & 0.5 \\ -1 & 0 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 0 \\ 1 \end{bmatrix} \begin{bmatrix} u_1 \\ u_2 \end{bmatrix}$$

$$Y = \begin{bmatrix} 1 & 0 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$

For input (a) u =unit step input (b) $u=e^{-t}$ using matlab.

13. Root Locus Of The System , $G(S)=\frac{20}{s(s+1)(s+2)}$ Using Matlab

14. Root Locus Of The System , $G(S)=\frac{2s+1}{s^2+s+1}$ Using Matlab

15. Root Locus Of The System , $G(S)=\frac{s(s+1)}{s^2+4s+16}$ Using Matlab