Assignments

Assignment 3

The code below is describing the assignment for the course. All assignments have to be submitted by the end of the week.

Access the guidelines below to start the following assignment.

1. A system has the following transfer function in the s-domain as given in the picture:

   \[ \frac{Y(s)}{X(s)} = \frac{2s^2 + 3s + 4}{s^2 + 5s + 6} \]

   a. Find the transfer function in the time-domain.
   b. Plot the step response for the system with initial conditions of steady-state as zero.

2. For a step input change of the input variable, the system reaches a steady-state at \( t = 0 \) with \( y(t) = y_p \). Using the initial condition that the input is zero.

   \[ \frac{y(t)}{x(t)} = \frac{2s^2 + 3s + 4}{s^2 + 5s + 6} \]

   a. Find the transfer function in the time-domain.
   b. Plot the step response for the system with initial conditions of steady-state as zero.

3. A system has the following transfer function in the s-domain as given in the picture:

   \[ \frac{Y(s)}{X(s)} = \frac{2s + 1}{s^2 + 4s + 5} \]

   a. Find the transfer function in the time-domain.
   b. Plot the step response for the system with initial conditions of steady-state as zero.

4. A system has the following transfer function in the s-domain as given in the picture:

   \[ \frac{Y(s)}{X(s)} = \frac{2s + 1}{s^2 + 4s + 5} \]

   a. Find the transfer function in the time-domain.
   b. Plot the step response for the system with initial conditions of steady-state as zero.

5. A system has the following transfer function in the s-domain as given in the picture:

   \[ \frac{Y(s)}{X(s)} = \frac{2s + 1}{s^2 + 4s + 5} \]

   a. Find the transfer function in the time-domain.
   b. Plot the step response for the system with initial conditions of steady-state as zero.

6. A system has the following transfer function in the s-domain as given in the picture:

   \[ \frac{Y(s)}{X(s)} = \frac{2s + 1}{s^2 + 4s + 5} \]

   a. Find the transfer function in the time-domain.
   b. Plot the step response for the system with initial conditions of steady-state as zero.

7. A system has the following transfer function in the s-domain as given in the picture:

   \[ \frac{Y(s)}{X(s)} = \frac{2s + 1}{s^2 + 4s + 5} \]

   a. Find the transfer function in the time-domain.
   b. Plot the step response for the system with initial conditions of steady-state as zero.

8. A system has the following transfer function in the s-domain as given in the picture:

   \[ \frac{Y(s)}{X(s)} = \frac{2s + 1}{s^2 + 4s + 5} \]

   a. Find the transfer function in the time-domain.
   b. Plot the step response for the system with initial conditions of steady-state as zero.

9. A system has the following transfer function in the s-domain as given in the picture:

   \[ \frac{Y(s)}{X(s)} = \frac{2s + 1}{s^2 + 4s + 5} \]

   a. Find the transfer function in the time-domain.
   b. Plot the step response for the system with initial conditions of steady-state as zero.