

DAY2,3- Learn Control System Basics

Learned about control system, Transfer function, poles and Zero, stability.

Ref: 1) Feedback Control System by RA Barapate

2) Control System Engineering by UA Bakshi

TEST CASE: Scilab Analysis

1) $(s-1)(s-2j)$

Solving this equation further i.e by multiplying and dividing by its conjugate.

$$(s-1)(s-2j) = ((s^3-s^2+4s-4)/(s+2j))$$

As this equation has degree of the numerator is greater than the degree of the denominator. So it is “INVALID” Transfer Function .And it is non-causal type of system.

$$2)(4s-56j)$$

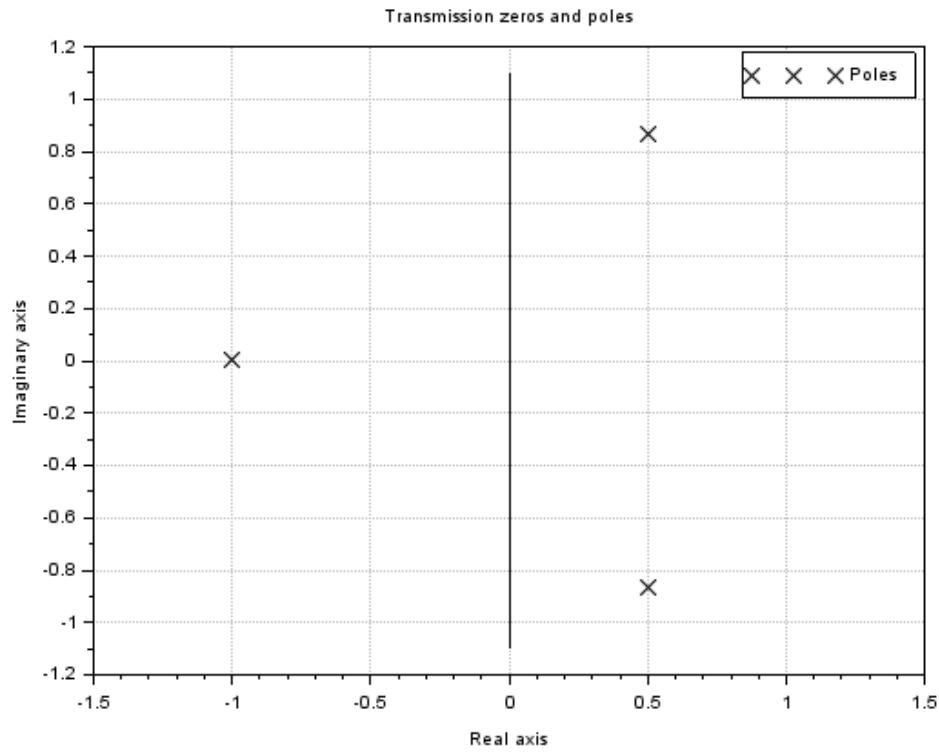
Solving this equation further i.e by multiplying and dividing by its conjugate

$$(4s-56j) = ((16s^2 = 3136)/(4s+56j))$$

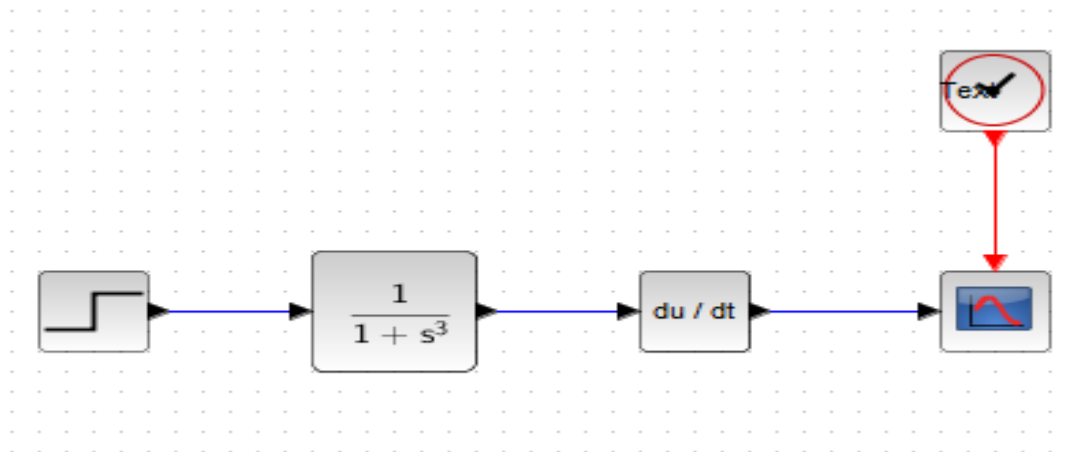
As this equation has degree of the numerator is greater than the degree of the denominator, So it is a “INVALID” Transfer Function .And it is non-causal type of system.

$$3)1/(s^3+1)$$

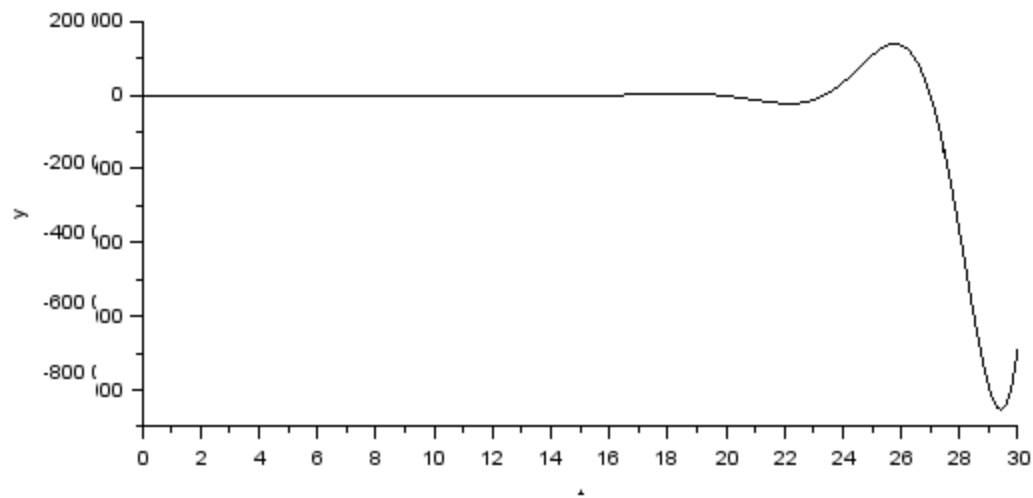
Poles of this equation are -1, 0.5+-0.5j



Pole-Zero Plot



Block diagram of Impulse Response-Xcos



Impulse Response

As two Poles are Transfer Function lies on RHS of s plane the equation is "UNSTABLE".