EE 554 – Homework Chapter 5

5.13 Consider the system

$$G(s) = \frac{1}{(s+1)^4}$$

And apply the Ziegler-Nichols procedure to design a PID controller. Obtain the response due to a nit step input as well as a step disturbance signal.

5.14 Write a computer program what implements the estimation of a first-order-plus-dead-time transfer function with the tangent method and then determines the PID parameters using the Ziegler-Nichols formula. Apply the program to the system

$$G(s) = \frac{1}{(s+1)^8}$$

and simulate the response of the control system when a set-point step change and a load disturbance step are applied. Discuss the choice of the time constant value based on the results.