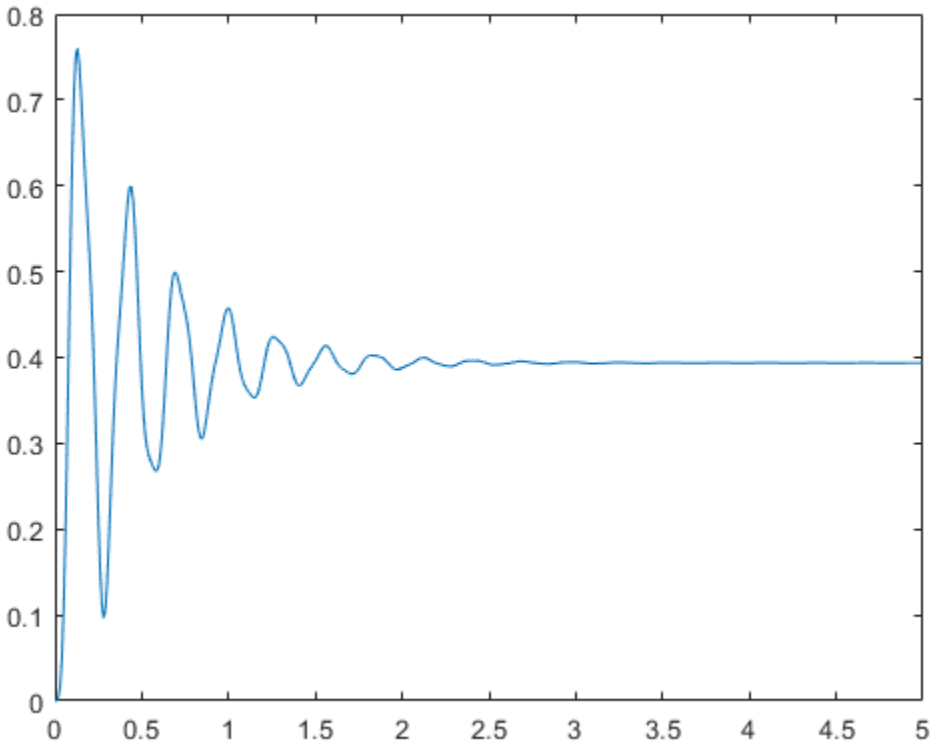
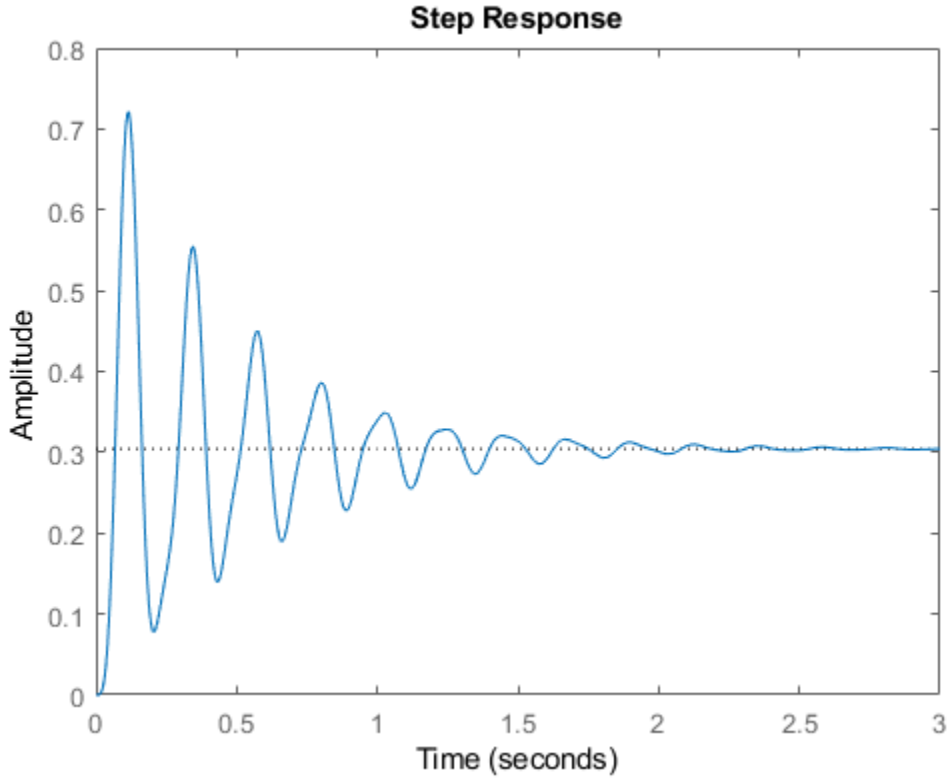
```
clear; clc;

numg= 2.5399;
deng=[7.904^-6 7.78^-5 0.01508 0.06349 6.4510];
sys=tf(numg,deng);
step(sys)
impulse(sys)
t=0:0.01:5;
[y,t]=step(sys,t);
plot(t,y) % natural frequency of link
```




```
[A,B,C,D]=tf2ss(numg,deng)% Convert tf into a ss equation for modeling
rlocus(sys)
p=pole(sys)
zeta = 0.07998;
wn = 6.25;
sgrid(zeta,wn)

k=1.1107 % determined from poles of rlocus plot
[k,poles] = rlocfind(sys)
sys_cl = feedback(k*sys,1)
step(sys_cl)


A =
```

```
   1.0e+06 *

   -0.0000   -0.0037   -0.0155   -1.5729
    0.0000         0         0         0
         0    0.0000         0         0
         0         0    0.0000         0


B =

     1
     0
     0
     0


C =

   1.0e+05 *

         0         0         0    6.1930


D =

     0


p =

  -2.1701 +56.1810i
  -2.1701 -56.1810i
  -2.1071 +22.2072i
  -2.1071 -22.2072i


k =

    1.1107

Select a point in the graphics window

selected_point =

  -0.5924 +54.1796i


k =

    1.1107


poles =
```

```
  -2.1789 +53.5395i
  -2.1789 -53.5395i
  -2.0983 +27.9821i
  -2.0983 -27.9821i


sys_cl =

                                  2.821
  ---------------------------------------------------------------------
  4.101e-06 s^4 + 3.508e-05 s^3 + 0.01508 s^2 + 0.06349 s + 9.272

Continuous-time transfer function.
```



Published with MATLAB® R2019b