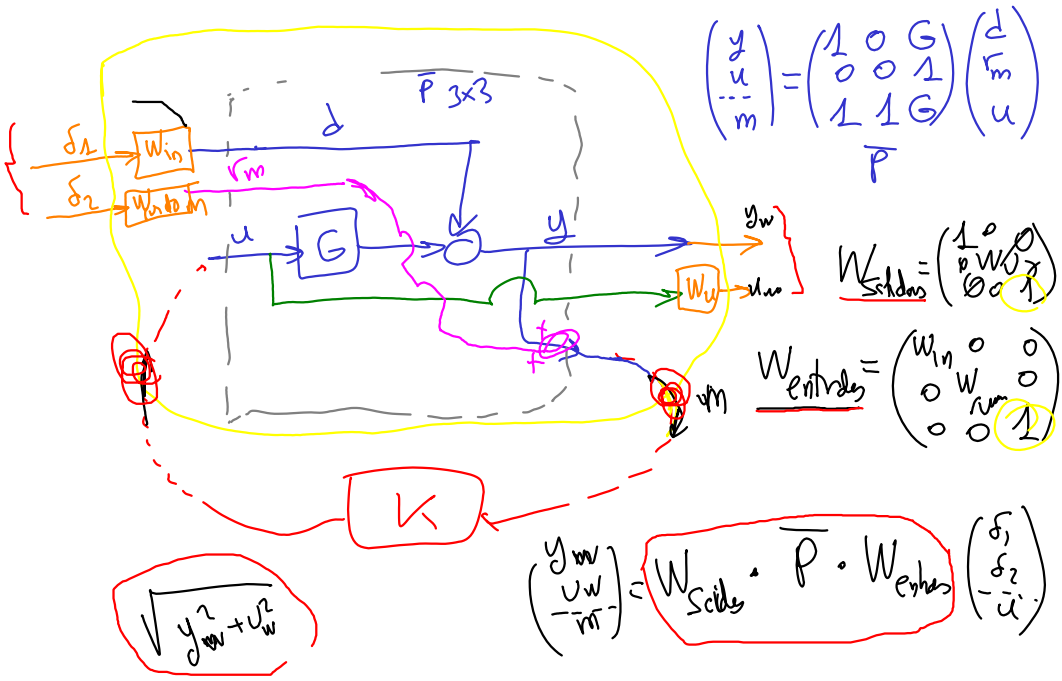
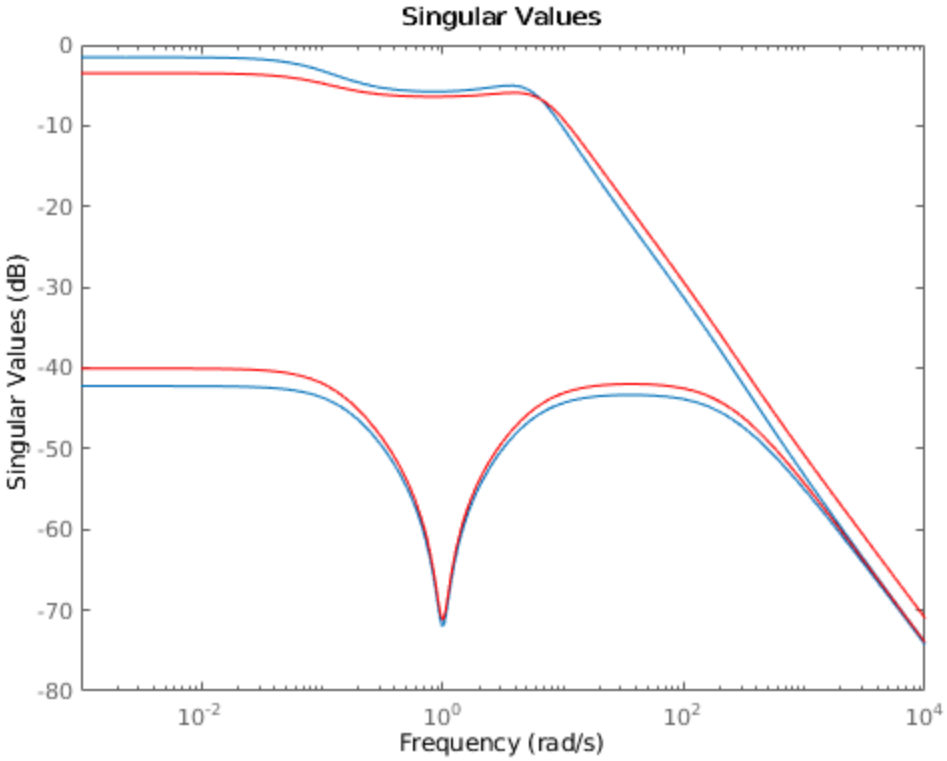


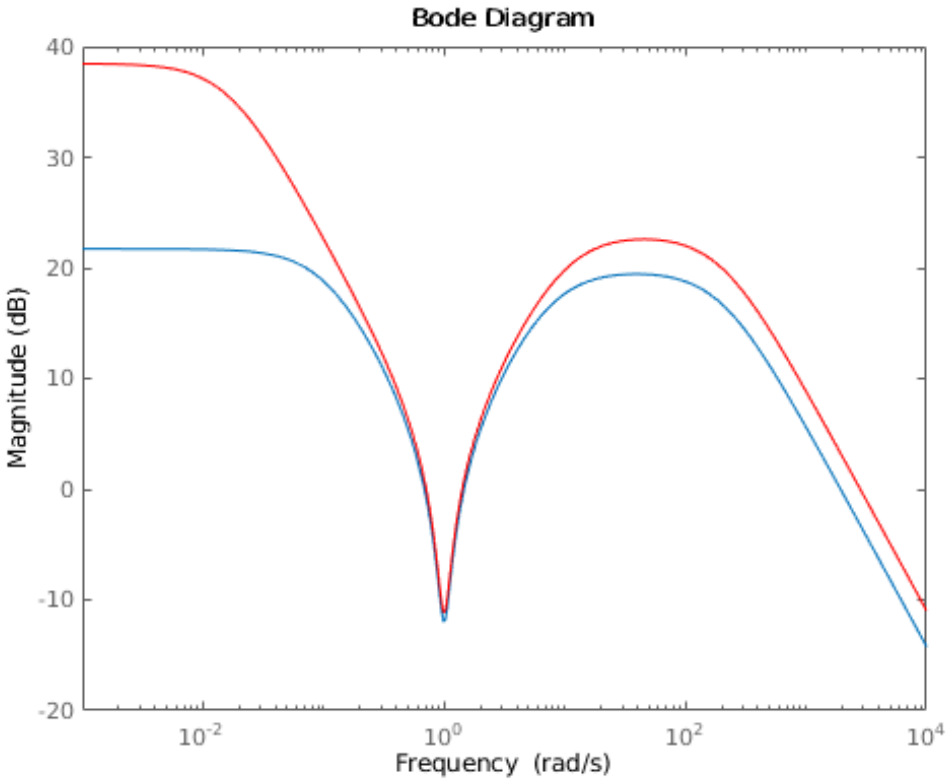
Presentación en vídeo en:
http://personales.upv.es/asala/YT/V/gpex1.html

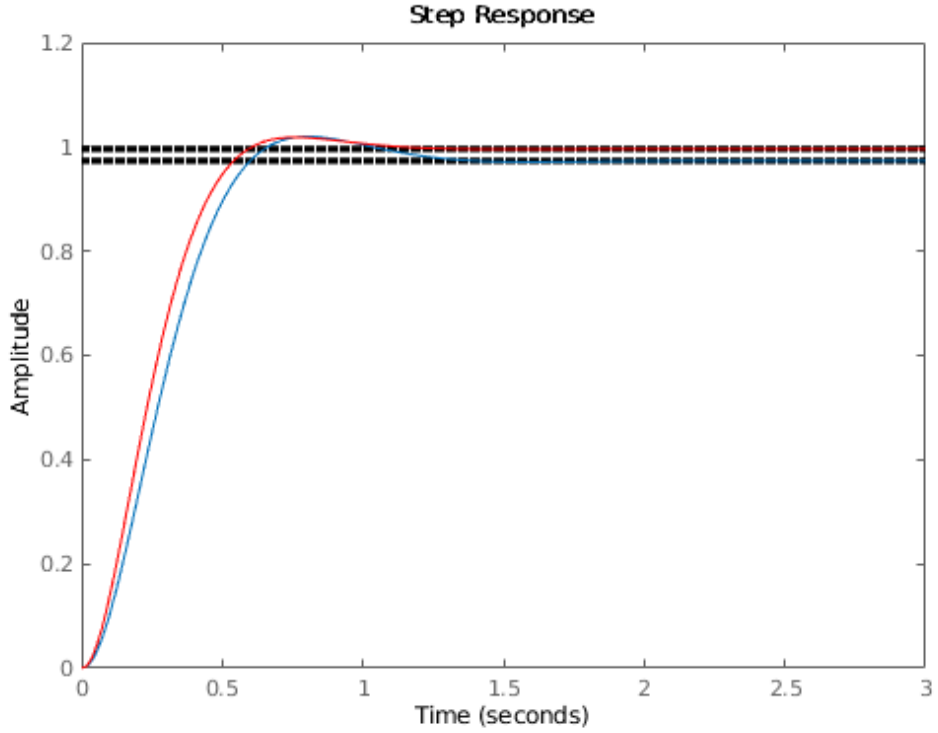
```
%acordarse de "pkg load control" y "more off"
%para OCTAVE
set (0, "defaultlinelinewidth", 3);

s=tf('s');
G=3/(s^2+0.2*s+1);


Win=2/(s+.1);
Wruidom=tf(0.01);
PesosEntradasGeneralizada=blkdiag(Win,Wruidom,tf(1));


Wu=tf(0.1);
PesosSalidasGeneralizada=blkdiag(tf(1),Wu,tf(1));


GenPl_nopeso=minreal(ss([tf(1) tf(0) G;tf(0) tf(0) tf(1);tf(1) tf(1)
 G]));

GenPl1=minreal(PesosSalidasGeneralizada*GenPl_nopeso*PesosEntradasGeneralizada);



size(GenPl1)


disp('Control Optimo H2')

[K, N, GAMMA, INFO]=h2syn(GenPl1,1,1);
tf(K)
GAMMA
figure(1)
sigma(N(1:2,1:2))
figure(2)
bodemag(K)
figure(3)
step(minreal(-G*K/(1-G*K)),3)

disp('Control Optimo Hinfty')
[K, N, GAMMA, INFO]=hinfsyn(GenPl1,1,1);
tf(K)
GAMMA
figure(1)
hold on
sigma(N(1:2,1:2),'r')
hold off
figure(2)
hold on
bodemag(K,'r')
hold off
figure(3)
```

```
hold on
step(minreal(-G*K/(1-G*K)),3,'r')
hold off
```

```
State-space model with 3 outputs, 3 inputs, and 3 states.
Control Optimo H2

ans =

    -1948 s^2 - 389.6 s - 1948
  ------------------------------
  s^3 + 207.6 s^2 + 1554 s + 160

Continuous-time transfer function.


GAMMA =

    1.0152

7 states removed.
Control Optimo Hinfty

ans =

    -2830 s^2 - 565.9 s - 2830
  ------------------------------
  s^3 + 210 s^2 + 2053 s + 33.76

Continuous-time transfer function.


GAMMA =

    0.6687

7 states removed.
```


Singular Values
Singular Values (dB)
0
-10
-20
-30
-40
-50
-60
-70
-80
10^{-2}
10^{0}
10^{2}
10^{4}
Frequency (rad/s)


Bode Diagram
Magnitude (dB)
Frequency (rad/s)
40
30
20
10
0
-10
-20
10^{-2}
10^{0}
10^{2}
10^{4}


Step Response
Amplitude
Time (seconds)
1.2
1
0.8
0.6
0.4
0.2
0
0.5
1.5
2
2.5
3

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