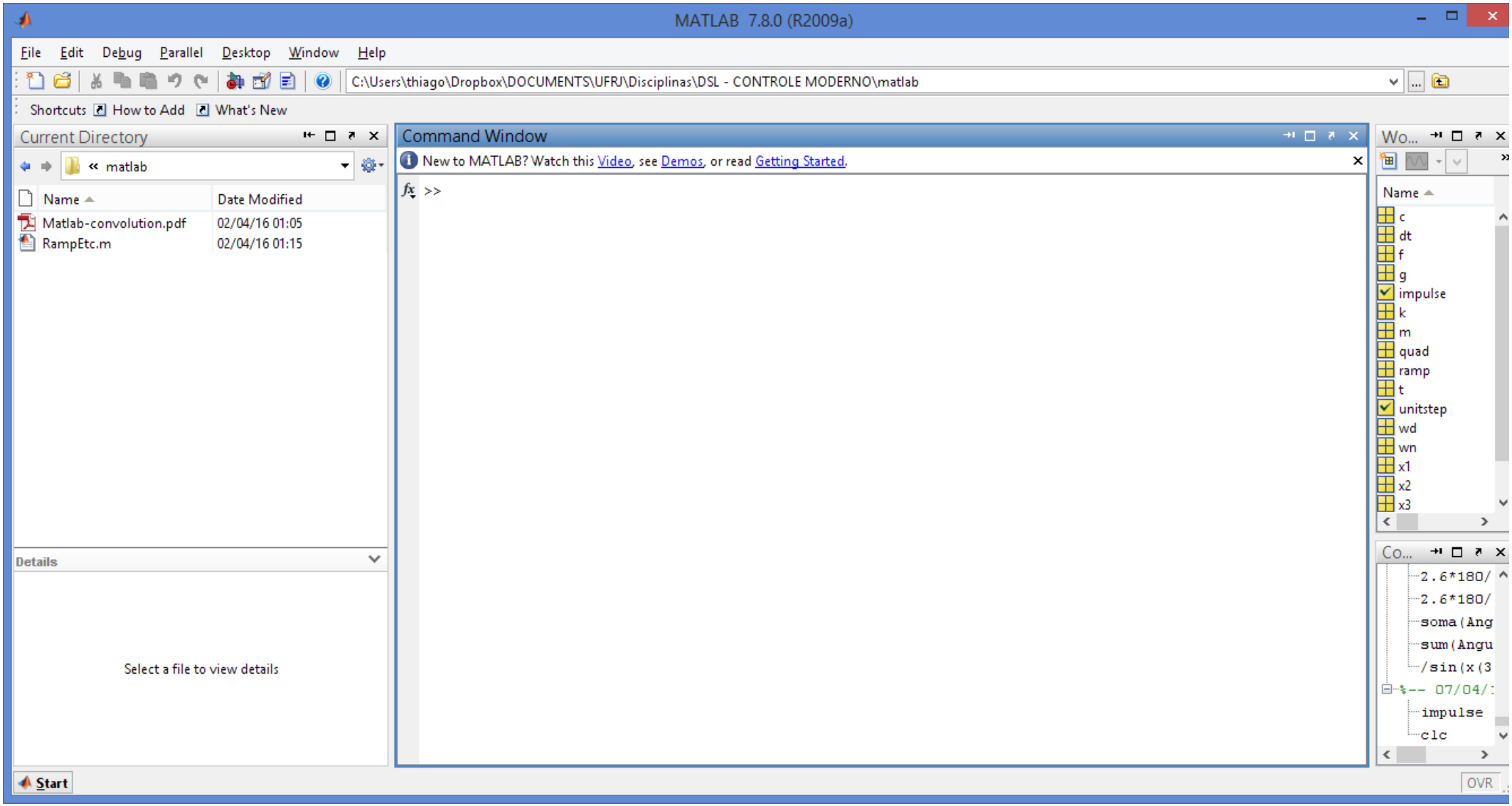
DSL - Dinâmica de Sistemas Lineares (e CONTROLE)

Thiago G Ritto, Abr-2016


MATLAB 7.8.0 (R2009a)
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matlab
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Matlab-convolution.pdf 02/04/16 01:05
RampEtc.m 02/04/16 01:15
Details
Select a file to view details
Command Window
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>>
Name
c
dt
f
g
impulse
k
m
quad
ramp
t
unitstep
wd
wn
x1
x2
x3
2.6*180/
2.6*180/
soma(Ang
sum(Angu
/sin(x(3
%-- 07/04/
impulse
clc
Start
OVR

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Stack: Base

1.0 1.1

```
clc
clear all
close all

dt=0.005;
t = (0:dt:10)';

impulse = (t==0);
unitstep = t>=0;
ramp = (t.*unitstep)/10;
quad = (t.^2.*unitstep)/100;

figure
plot(t,[impulse unitstep ramp quad])
grid on

% response ao impulso initario
m=1;
k=100;
c=.5;
wn=sqrt(k/m);
xi=c/(2*m*wn);
wd=wn*sqrt(1-xi^2);
g=1/(m*wd).*exp(-xi*wn*t).*sin(wd*t);

figure
plot(t,g)
grid on
```

```
30      %--
31 -    f=impulse*dt;
32 -    x1=conv(f,g);
33 -    figure
34 -    plot(t,x1(1:length(t))/dt)
35 -    grid on
36
37 -    f=unitstep*dt;
38 -    x2=conv(f,g);
39      %figure
40      %plot(t,x2(1:length(t))/dt)
41      %grid on
42
43 -    f=ramp*dt;
44 -    x3=conv(f,g);
45      %figure
46      %plot(t,x3(1:length(t))/dt)
47      %grid on
48
49 -    f=quad*dt;
50 -    x4=conv(f,g);
51      %figure
52      %plot(t,x4(1:length(t))/dt)
53      %grid on
54
55 -    figure
56 -    plot(t,[x1(1:length(t))/dt x2(1:length(t))/dt x3(1:length(t))/dt x4(1:length(t))/dt])
57 -    grid on
58 -    legend('impulse','step','ramp','quad')
59
```

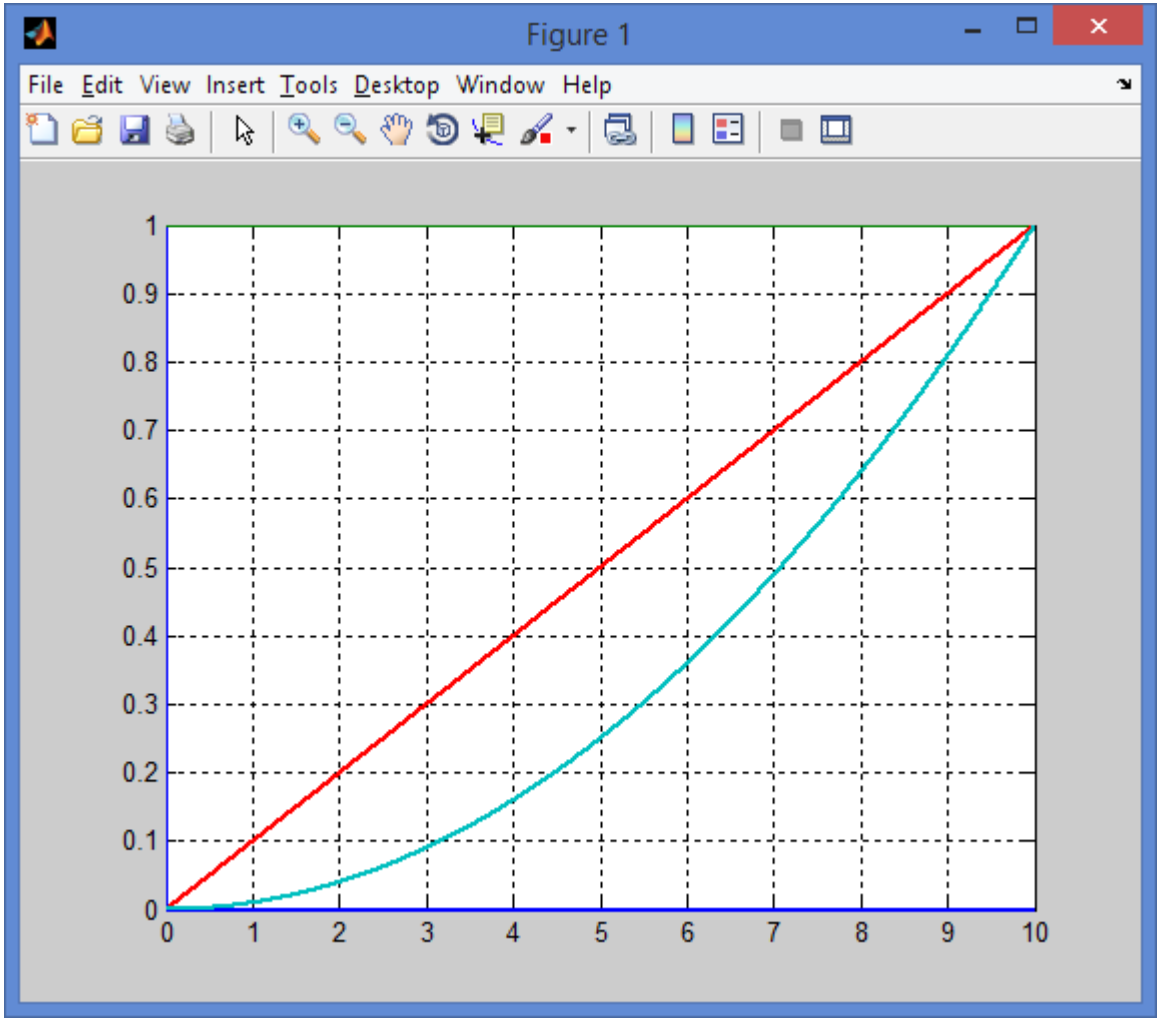
Figure 1
File Edit View Insert Tools Desktop Window Help
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0 1 2 3 4 5 6 7 8 9 10

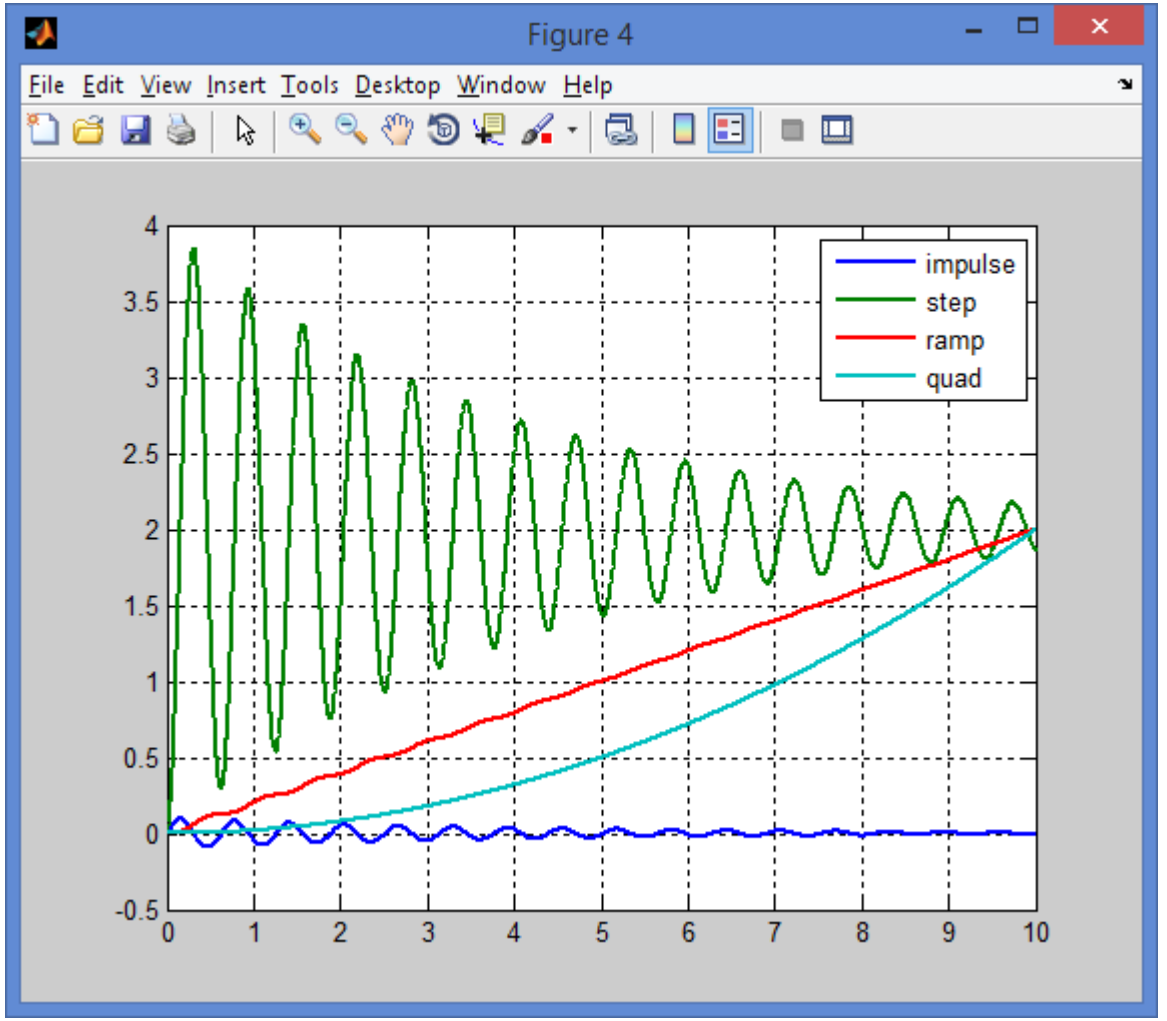
Figure 4
File Edit View Insert Tools Desktop Window Help
impulse
step
ramp
quad
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
0 1 2 3 4 5 6 7 8 9 10