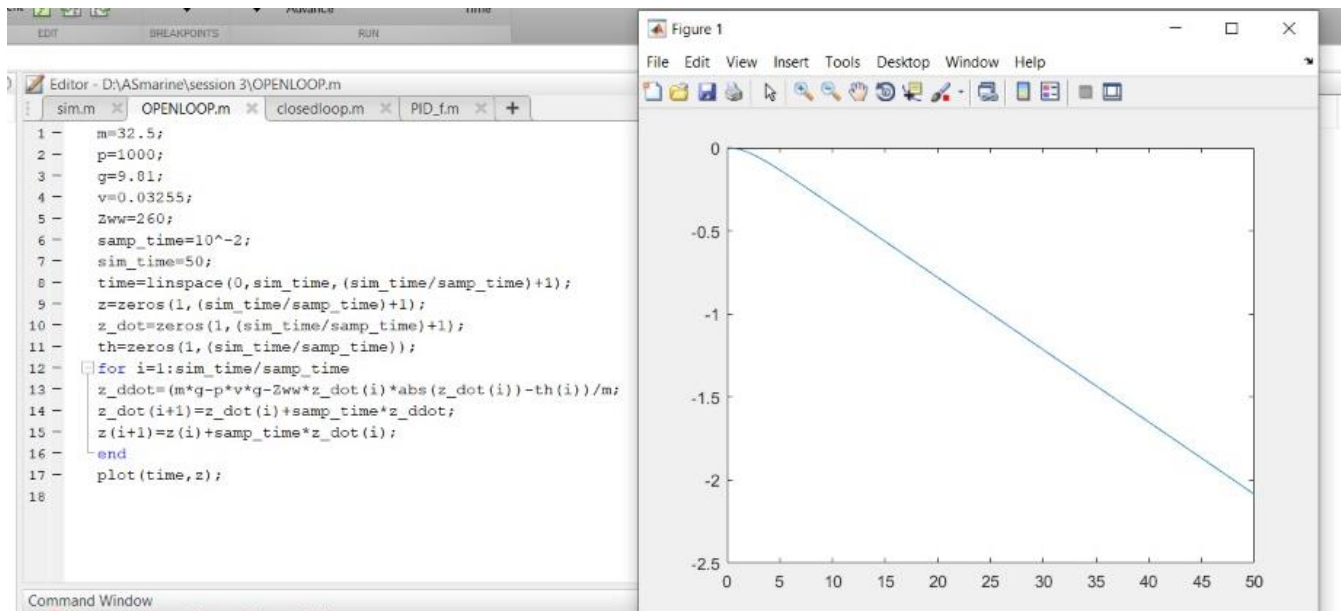


# Assignment 1

## Part 1 (open loop)



## Part2 Closed loop

MATLAB R2015b

HOME PLOTS APPS EDITOR PUBLISH VIEW

Insert Comment Indent Breakpoints Run Run and Advance Run and Time

FILE NAVIGATE EDIT BREAKPOINTS RUN

Current Folder: D:\ASmarine\session 3

Editor: D:\ASmarine\session 3\closedloop.m

```

1 - m=32.5;
2 - p=1000;
3 - g=9.81;
4 - v=0.03255;
5 - Zvw=260;
6 - samp_time=10^-2;
7 - sim_time=50;
8 - z_ref=5;
9 - kp=5.3;
10 - ki=1.93;
11 - kd=3.63;
12 - time=linspace(0,sim_time,(sim_time/samp_time)+1);
13 - z=zeros(1,(sim_time/samp_time)+1);
14 - z_dot=zeros(1,(sim_time/samp_time)+1);
15 - th=zeros(1,(sim_time/samp_time));
16 - for i=1:sim_time/samp_time
17 -     error=z_ref-z(i);
18 -     function th=PID(error,kp,ki,kd)
19 -     end
20 -     z_ddot=(m*g-p*v*g-Zvw*z_dot(i)+abs(z_dot(i))-th)/m;
21 -     z_dot(i+1)=z_dot(i)+samp_time*z_ddot;
22 -     z(i+1)=z(i)+samp_time*z_dot(i+1);

```

Command Window

```

>> closedloop
Error: File: closedloop.m Line: 18 Column: 3
Function definitions are not permitted in this context.

>> OPENLOOP
>> OPENLOOP
>> closedloop
Error: File: closedloop.m Line: 18 Column: 3
Function definitions are not permitted in this context.

fx >>

```

Workspace

Name	Value
error	5
g	9.8100
i	5000
kd	3.6300
ki	1.9300
kp	5.3000
m	32.5000
p	1000
samp_time	0.0100
sim_time	50
th	1x5000 double
time	1x5001 double
v	0.0326
z	1x5001 double
z_ddot	-3.4161e-16
z_dot	1x5001 double
z_ref	5
Zvw	260

script | Ln 18 Col 34

Type here to search

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