

FUNCTIONS IN MATLAB & PYTHON

ECC 811 – SOFTWARE ENGINEERING

Saturday, July 5, 2025

FUNCTION IN MATLAB

```
function [output arguments] = function_name(input arguments)
```

The word **function** must be the 1st word and must be typed in lower-case letters

A list of output arguments typed inside brackets.

The name of the function

A list of input arguments typed inside parentheses.

EXAMPLE 1

Code:

```
function h = height(g, v, time)
h = v * time - g * time * time * 0.5;
```

How to call function:

```
h = v * time - g * time * time * 0.5;
```

FUNCTION IN MATLAB-EXAMPLE 2

Note: **Output Arguments**

```
function [mpay, tpay] = loan(amount, rate, years)
% loan calculates monthly and total payment of loan.
% input arguments:
% amount = loan amount in $
% rate = annual interest rate in percent
% years = number of years
% output arguments:
% mpay = monthly payment
% tpay = total payment
```

Function

definition line

The H1 line

Help text

Function body

output arguments
Assignment of
Values to

```
format bank
ratem=rate * 0.01 / 12;
a = 1 + ratem;
b = (a^(years*12) - 1)/ratem;
mpay = amount*a^(years*12) / (a*b);
tpay=mpay*years*12;
```

FUNCTION IN PYTHON

A Function in Fortran or Python is used to utilize the code in more than one place in a program. It is also called method or procedures.

Example:

```
def height(g, v, time):  
    h= v *time - g*time*0.5  
    return h;  
  
# returns height a ball reaches when subject to  
#constant gravitational acceleration.  
  
# Arguments  
# g - gravitational acceleration  
# v - initial velocity  
# time - time at which height is desired
```

```
y = height(2.0, 3.0, 5.0)  
print('answer = ', y)
```