

# EAS 501 Style Guide

## 1 Purpose

The use of comments and proper indentation makes source code consistent and hence easier to understand and maintain. The purpose of this document is to outline the expectations for function headers and formatting, where appropriate. As most of the code created in this course are self-documenting (e.g. they are simple enough that in-code comments are not necessary), only function header comments will be covered. Please remember that more complicated codes, particularly those that have external dependencies or that are mission-critical, should have appropriate documentation in the code.

## 2 MATLAB Functions

All MATLAB functions shall have the following format:

```
function [c,d] = ubitname_ppN(a,b)
%UBITNAME_PPN Summary of this function goes here
%
% Inputs:
%   a - One-line description of variable a, expected data type, and/or values
%   b - One-line description of variable b, expected data type, and/or values
%
% Outputs:
%   c - One-line description of variable c, expected data type, and/or values
%   d - One-line description of variable d, expected data type, and/or values

Code_line_1;

if a==1
    Code_line_2;
elseif a==2
    Code_line_3;
end

for i=1:10
    if a==i
        Code_line_4;
    else
        Code_line_5;
    end
end

switch a
    case 1
        Code_line_6;
    otherwise
        Code_line_7;
end
end % ubitname_ppN
```

For all functions `ubitname` is replace with your `ubitname`.

The first line of the file must be the function declaration. This is followed by the filename fully capitalized and a short one or two line summary of the function purpose, followed by a blank comment line. The next line must contain a tab followed by **Inputs:**. The inputs are then described, one on each line following the ordering of the function call with two tabs preceding each variable name and a - separating the variable and the description. Each input variable must provide a single line description of the expected input with a data type and/or values if appropriate. If no input variables are present then the line following **Inputs:** shall contain two tabs followed by the text **No input variables present**. Once all inputs have been described a blank comment line is entered. Following this blank comment line all of the outputs are described following the same requirements and formatting as the inputs, replacing all of the words **input** with **output**, matching the appropriate case. Do not include any comment lines below the final output variable description or **No output variables present**, as appropriate. After the last comment line in the header block include a blank line before beginning your code. For the **end** corresponding to the **function** keyword enter a comment with the function name, as shown above.

All lines in the header description must begin with a % in the first character location for each line. All code must be indented one tab from the **function** and it's associated **end** keywords. All code contained within **if**, **else**, **elseif**, **switch**, **case**, **otherwise**, **for**, or **while** structures must also be indented to clearly show they are part of said structure.

If there are any additional functions in the file they must all conform to this style guide.

### 3 Python Functions

All Python functions shall have the following format:

```
import module1 as md1
import module2 as md2

def functionName(a, b):
    #Summary of this function goes here
    #
    # Inputs:
    #   a - Description of variable a, including expected data type and/or values
    #   b - Description of variable b, including expected data type and/or values
    #
    # Outputs:
    #   c - Description of variable c, including expected data type and/or values
    #   d - Description of variable d, including expected data type and/or values

    Code_line_1

    for i in range(b):
        Code_line_2

    c = a + b
    d = a - b

    return c, d
```

After declaration of the function include a short one or two line summary of the function followed by a blank line. Then describe all inputs and output in a similar manner to the MATLAB comments above. As Python is whitespace sensitive all code with already be properly formatted.