MAE 3724, Systems Analysis and Introduction to Controls

PreLab for MATLAB Exercise 1 – `Basics of plotting, tf(), lsim()`

1. Install Matlab on a notebook computer that you can bring to class and lab. Matlab can be downloaded using the following link:

https://www.mathworks.com/academia/tah-portal/oklahoma-state-university-stillwater-348318.html

2. Download the following three files from the Matlab Examples module on Canvas:

a) SimplePlotting.m
b) tf_demo.m
c) Matlab_summary_notes.pdf

Bring those three files with you on your computer when you come to lab. During the lab, you will be modifying these files to solve other problems.

3. Open SimplePlotting.m and Matlab_Summary_Notes:

a) Use Matlab Summary to understand the meaning of lines 1 thru 10 in SimplePlotting.m.

b) Using Matlab summary, explain the purpose of the " . " characters on line 12.

The "." charater indicates that the array must be evaluated element by element.

4. Run – SimplePlotting.m and answer the following questions:

a) What is the peak value of y on the second graph: 19.4883

b) At what time does the peak value of y appear on the second graph: 4.021 (s)

5. Open tf_demo.m and Matlab_Summary_Notes:

a) Use Matlab Summary to attempt to understand the entire program (tf_demo.m)

6. Run – tf_demo.m and answer the following questions:

a) What is the peak value of the impulse response (second graph): 1.29

b) At what time does the peak value of the impulse response occur: 0.276 (s)

Write your answers on this page, scan it and upload it to the Matlab Prelab 1 assignment dropbox.