**12-659**

**SPECIAL TOPICS: MATLAB**

## Fall 2019 A2

**Exercise 1**

**Due *Friday* October 25, 2019**

1. Create an M file that solves the Lab 1b problem. The program should compute and plot the deflection of the beam. Upload the M file to Canvas.

II. Write a short (one or two pages) report using Microsoft Word. The report should be grammatically correct and use full sentences. Be sure your name, the course number, date and exercise number are at the top of your report. Turn it in on Canvas. The report should include two sections:

a) the answers to the 10 questions below. You can cut and paste your commands and MATLAB’s answers into your Word document;

b) a list of all the things that you still do not understand;

Remember that MATLAB has a useful Help function, as well as interesting demos and an active, helpful online community forum if you need some initial guidance. Answer the following questions. Use Matlab to do the conversion work for you.

1. How many bits are in a terabyte?
2. What is the decimal number for the following binary number: 1001001001?
3. What is the decimal number for the following hexadecimal number: 0d55c1?
4. Create a vector containing the following values [0, 1, 2, 3, 4] and store it in a variable named after your best friend.
5. Create and name a matrix of zeros of size 6 x 4. You can choose whatever variable name you want.
6. Replace the third row of the matrix from Question 5 with zeros.
7. Replace each element in the second row of the matrix from Question 5 with its corresponding column number squared (i.e. the third element in the row would be 3^2).
8. Replace the last column of the matrix with integers starting from -2.
9. Suppose you want to save all the variables and their values that are in your Workspace, how would you do this? (Hint: learn about the **save** function).
10. Learn about the following functions: **rand**, **ones**, **zeros** by reading the MATLAB help files. You can also find the information on the web. Write a brief description in your own words of each function and show an example.