

# MATLAB Assignment 1

## ME451 - Fall 2011

September 16, 2011

**Problem 1.** Implement a MATLAB program that does the following things:

- Opens the file “*functionDefinition.txt*” and reads the string of characters that is on the first line of this file
- Converts this string of characters to a function that depends on time
- Passes this function as an argument to a MATLAB function, call it *myAverageStdDev* (defined in the file “*myAverageStdDev.m*”)
- The MATLAB function *myAverageStdDev* uses 101 values of time,  $t = 0.0, 0.1, 0.2, \dots, 10.0$  to generate a 101 entry array **myArr** that stores in its  $i^{th}$  entry the value of the function parsed from “*functionDefinition.txt*” evaluated at time  $t_i = i * 0.1$ , for  $i = 0, \dots, 100$ .
- *myAverageStdDev* should finally compute and then return to the calling MATLAB function two numbers: the values of the average and standard deviation of all entries stored in **myArr**

Please use the *tic-toc* construct in MATLAB to get the amount of time it took you to run your MATLAB program. When done, post on the forum three things: the average value you obtained, the standard deviation, and the amount of time your code took to do this.

As far as the file “*functionDefinition.txt*” is concerned, it should contain one line only, which should read:

```
10.5*sin(2.4*t + pi/2)
```

When submitting your MATLAB files, please generate a zip file that contains a directory named “YourLastNameHW1” and stores all the files required to run the program. There should be at least one file called “*driver.m*” which the TA will run to check the correctness of your solution.