

## BME 790.01

Fall 2013

### In Class Worksheet 2

Instructions: Program the following in MATLAB working independently or with a partner. Be sure to save your .m file and send it to me (as well as your images) for review. Please save your plots as a .gif, .pdf or other easily accessible file and upload your results (.m file and .pdf) to Sakai's dropbox and clearly label them Worksheet2.

1. As discussed in the preceding lecture, there are several functions you will continue to revisit as you progress in this course. Today you are responsible for plotting them. Start by creating a time vector that spans from -5 to 5 with a step size of 0.1. There are two main ways you can accomplish this in MATLAB. Program both (t and t2) and confirm that the resultant vectors are identical.
2. Initialize four variables that are the length of the t vector you created in the previous section, Rect, Delta, Step, and Ramp and set them all to zeroes. Verify that they all are identical at this step.
3. Modify the Rect vector to be a rect function (as defined in lecture) with a width of 2, i.e.  $\text{rect}(t/2)$ . Plot the Rect vector as a function of time in blue.
4. Modify the Delta vector to be a delta function with amplitude 1, i.e.  $\delta(t)$ . Plot the Delta vector in black as a function of time on the same plot the Rect function is plotted. (Hint: use the command hold on to avoid overwriting the Rect vector)
5. Modify the Step vector to be a step function with amplitude 1, i.e.  $u(t)$ . Plot the Step vector in red as a function of time on the same plot as the previous two.
6. Lastly modify the Ramp vector to be a ramp function, i.e.  $r(t)$ . Plot the Ramp vector in green as a function of time on top of the plot of all the others.
7. Save the figure with the plots as a .pdf file and upload it to Sakai clearly labeled Worksheet2. Remember to save your script (.m) file as well and upload that to Sakai as well.