Notes on Lab 1

Requirements:

You need to bring your own set of **earphones and a copy of the Lab 1 answer work sheet**. I strongly suggest that you **print a copy of the answer sheet using duplex printing** so that the two pages are on the front and back of one sheet of paper. In this way, it will be much easier for the TAs to mark your work and record your marks.

Preparation:

1. You must read through the Lab 1 description thoroughly before you go to your lab session. Exercises are spread throughout the lab sheets, identified as "Exercise 1.1(a)", etc. You may wish to highlight them on the lab sheets for easy identification.

2. I also strongly suggest that you browse through the Simulink Library in Matlab to familiarize yourself with how to navigate and find various blocks used in Lab 1. If you have time, try connecting a couple of blocks together to get a feel for how to build a Simulink model.

Useful Tips:

1. You will need to download 3 sound files from the Blackboard course portal under Lab 1 in Course Materials. While they are not really big files, you may wish to download them to a usb drive first to save time.

2. There are 2 ways you can run a simulation on Simulink, time-based and sample-based. There is only one instance where you will run a time-base simulation. It is on page 5, just after Figure 3. All other simulations are sample-based.

3. For sample-based simulation of a sine wave, you have to select the sample time = 1/sampling frequency, and the number of samples per period under "Sin parameters", when you right-click the sine block. If the sine wave has frequency f, in Hz, and the sampling frequency is Fs, in Hz, then the number of samples per period is Fs/f.

4. By default, when Simulink finishes a simulation, it will produce a ring sound. In Sections 2.2.2 and 2.2.3, you will connect a signal to an Audio Device. You may wish to type the command "beep off" in Matlab to turn off the ring sound so that only the sound of the signal comes out of the Audio Device.

5. In Section 2.3, you are asked to visualize the spectrum of a signal. There are 10 steps to build the frequency scope that displays the spectrum. As explained in Section 2.3, if you run out of time, you can just **download the Simulink model freqScope.slx from the course portal, and do step 11**, the simulation step, so that you can complete the lab. However, we strongly suggest that you try to build the frequency scope model to become familiar with various blocks in the DSP Toolbox in Simulink.

Have fun!