EEE 482F LABORATORY 1

INTRODUCTION TO SYSTEMVIEW

Objective
- To become familiar with the features of Systemview.

Exercise 1
Start Systemview and run the Demo program from the Help drop down menu. Take note of the features offered by the system.

Exercise 2
Design and implement a frequency shift keying (FSK) modulation scheme as follows:

- Select a pseudo-noise (PN) generator as the source. Set the parameters as amplitude equal to 0.5Volts with an offset of 0.5Volts. This will make the output vary between 0 and 1. Set the PN rate to 100Hz to ensure a reasonable number of oscillations. Leave all the other parameters as default. Attach a real-time sink display to view the output of the PN generator. Set the number of samples on the system run time menu to 1024 and the sampling rate to 10kHz. Run the system to view the output.
- Use two sources to generate the two modulating frequencies. Use a sine wave for each source with frequencies set to 2kHz and 4kHz respectively.
- Multiply one of the sine inputs directly with the output of the PN generator. For the second sine input, insert a NOT gate (from the operator menu) between the output of the PN generator and the multiplier.
- Add the outputs from the two multipliers and view the output using a real-time sink display. Also view the output of each multiplier separately using a probe.
- Go to the analysis window to view the output of the sinks. Note that you have to "load new system data" on the analysis window (top left button). Also view the spectrum of the output from the Adder using the FFT function on the calculator.
- Set up two Bandpass filters (operators menu) to separate the two modulating sine waves. Select an analog filter and specify the cut-off frequencies as required.
- View the outputs of each filter using display sinks. Also view the FFT of each filter output in the analysis window.
- Note that you can export numerical values at any point in the system to a file using a sink.

Call the tutor/demonstrator when you are done and be ready to answer a couple of questions on what you have done.