

PHYS 5061 Lab 1: Introduction to LabVIEW

In this lab, you will work through chapter 1 and 2 of Essick's book to become familiar with using LabVIEW to build simple programs, called VI's in "LabVIEW-speak," short for Virtual Instruments. Eventually we will use LabVIEW to control experiments, including control of instruments and collection, display, and analysis of data.

Keep your work in a sensibly named folder or short-cut on the Windows desktop so the instructor can find your work easily.

(1) Work quickly through the chapter 1, which provides some basic orientation to navigating LabVIEW. You may find that some features in the LabVIEW version we are using don't match perfectly the description in Essick's book, but they are around somewhere among all the palettes of functions, Controls, and Tools. Don't worry about documenting anything in detail at this point in your notebook. You may skip the "Do It Yourself" exercise on pp 32-33, but try the "Use It!"

(2) Move on to work through chapter 2 including the do-it-yourself exercise at the end of chapter 2. (The Use It! introduces a handy way to have more interactive input of starting values to a VI; you don't have to do it but you might want to keep it in mind for future work. If working in a team, make sure each person spends time working the controls.

(3) Complete end-of chapter problems 5 (metronome) and 8 (iterations until integer = 5) from chapter 2. For the metronome VI, add in some audio with the beep.vi built into LabVIEW to produce a 262 Hz tone for 100 ms on each tick of the metronome along with the blinking light.

Feel free to trade ideas in developing these final VI's if you wish. After you have finished a VI and *think* it's perfect, make a final test of it by closing it, loading it afresh into LabVIEW and see if it performs as desired. You may discover LabVIEW has decided on assigning some default conditions or values to parameters that make for unexpected or undesired behavior and you should figure out how to change this behavior. (Right-clicking with the mouse on things in LabVIEW often brings up a wealth of hidden options on controls, displays, and functions.)

Add some comment labels to your block/wiring diagrams to make your code intelligible to others. Print out the VI's (Front panel, Block diagram) and tape them into your lab notebook. (Do this for the DIY and two end-of chapter 2 problems.)

Save the VI's in the folder on the Windows desktop so the instructor can test them out.