ME 120 Experimental Methods

Homework #4: LabView, and Confidence Intervals

1. (10 pts.) Build a VI in LabView that generates a 2-D array of 3 rows by 10 columns of random numbers, transposes it (i.e., makes it 3 columns by 10 rows), and then writes the data to a file that can be opened by Excel (e.g., a text file). (Hint: See section 10.2 in the LabView 8 Student Edition book or check out some of the File I/O examples from the LabView Help menu (Help → Find examples → Fundamentals file → File Input and Output).

   Add some description about what your VI does in the Documentation category of VI Properties (File menu → VI Properties or just Cntrl-I)

   Verify that your VI works by including a printout of the file your VI generated. Also print out the Front Panel, Block Diagram, and full documentation (select 'Complete documentation' in the LabView Print wizard).

2. Optional (10 pts. Extra credit) Modify or re-write the VI from Problem 1, so that it has the ability to add headings for each column (i.e., "Sensor 1, psi", "Sensor 2, °C", etc.) of the array to the file. The Front Panel should allow the user to input the heading information as part of the functionality of the VI. Print out both the Front Panel and Block Diagram. Don't forget to document your VI.
3. (10 pts) EMfE Prob. 6.35. (In part (a), consider the period where the first 10% of the lamps fail. In other words, the 10% that fail earliest)
4. (10 pts) EMfe Prob. 6.46
5. (10 pts) EMfe Prob. 6.50