

ME 120 Experimental Methods

Homework #1: Class Communication, Sig Figs, Rounding, LabView, and Calibration

1. Verify that you can access the ME 120 course shell in WebCT. Log in at:

<http://sjsu.webct.com/public/me120f06bf>

**** Important Note **** Do this ASAP, so that you don't miss any important information. I will use WebCT to send email announcements, so make sure your email settings in WebCT are such that when I send you mail, it will go to a place you will check at least once per day.

2. Fill out the Questionnaire at:

<http://www.engr.sjsu.edu/bjfurman/courses/ME120/me120pdf/ME120questionnaire.pdf>.

The more completely you fill this out, the better I will get to know you, and the better I will be able to help you be successful. Turn this in along with HW #1, but keep it separate from the rest of the assignment. I will have a separate pile for the questionnaires.

3. Visit Christopher Mulliss' website (<http://www.angelfire.com/oh/cmulliss/index.html>) and write (typewritten only) about the following:
 - a. (5 pts.) What is the 'alternate' rounding rule for multiplication and division? Explain it.
 - b. (5 pts.) Why is it preferred over the standard rounding rule for multiplication and division? Explain why.
 - c. (5 pts.) How did Prof. Mulliss establish that the alternate rounding rule is preferred over the standard rounding rule for multiplication and division? Explain how.
4. Consider the following calculations. Report the results to the correct number of significant figures:
 - a. (2 pts.) $3.25 + 4.156$
 - b. (2 pts.) $105.0/94$
 - c. (2 pts.) $2.034 \times 10^2 - 1.275$
5. A beam used for a vibration test is 1.000 ft long, 0.50 inches wide, and 0.25 inches thick. It is made of 6061-T6 aluminum. What is its:
 - a. (2 pts.) Mass in slugs?
 - b. (2 pts.) 'Mass' in lbm? (What kind of a unit is lbm, anyway?? Explain your answer.)
 - c. (2 pts.) Mass in kilograms?
 - d. (2 pts.) Assuming that gravity on the moon is $1/6^{\text{th}}$ of that on earth, what is the mass of the beam on the moon?
6. (5 pts.) Explain the difference between the Block Diagram and the Front Panel in LabView. What is done in each window? What is the keyboard shortcut to automatically "tile" the two windows vertically? (Your answers must be typewritten for full credit.)
7. (5 pts.) EMfE Prob. 2.3
8. (5 pts.) EMfE Prob. 2.16