Background Assessment
1/13/2009
(ungraded)
Due at the beginning of next class (1/15/09) or before to MEB2136

Do not spend any time calculating or looking up anything for this survey. I just want to know what you know off the top of your head. If you would know immediately if you just had a book in front of you, just state this next to the associated question.

Personal Information
Last Name: First Name:
Preferred Name/Nickname: Email:
Highest Degree Held and field of that degree:
Current Department and degree currently sought:

To get 24 hour access to the lab (MEB 2172) please provide info on your student ID and card reader please include here and email Dr. Provancher your full name, UID # in the form u0xxxxxx, and card# in the form xxxxxxxxxx.

Why are you interested in this course?

Experience
1. What other courses have you taken in virtual reality, human-computer interaction, computer graphics, or controls?

2. How familiar are you using with haptic displays? ______ [rate from 0 to 5: 0 = never touched one, 5 = used extensively]

Mechatronic Hardware
3. List 3 ways for sensing position, proximity or force (e.g., sonar/proximity). State which parameter each method senses.

   A. method: _______________________ parameter: _______________

   B. method: _______________________ parameter: _______________
C. method: _______________________ parameter: ________________

4. Are you familiar with basic electrical circuit analysis?
   
   What is Ohm’s law?
   
   What are the laws of ideal op. amps?

**Programming**

5. What programming languages and operating systems are you proficient in?

6. Have you ever used an I/O board (e.g. analog-to-digital converter or digital I/O) to make the computer communicate with the outside world? Describe very briefly (< 20 words).

**Design and Fabrication**

7. Describe briefly the most complicated thing you ever made or fixed. (Examples: rebuilt automobile engine, sewed a tailored jacket, made a lego robot.)

8. What is your level of skill in using the following tools? [rate from 0 to 5: 0 = never touched one, 5 = highly skilled]

   lathe or milling machine (CNC?) _________ soldering iron _________

   router _________ hot-melt glue gun _________

   band saw _________ drill press _________

**Controls**

9. What are the Laplace Transforms of the following, where $K$ is a constant and $x$ is a function of time, $t$?
10. Describe the effect and/or form of the following types of control (in words, or with signal or flow chart diagrams):

A. proportional ________________________________

B. derivative ________________________________

C. integral ________________________________

**Statistics**

12. Briefly describe the point of doing an ANOVA.