HOMEWORK PROJECT 1 Corrections: Due Thursday 10/18/2007 or Friday 10/19/2007 at noon
Make corrections indicated on project 1. Additional 10 points will be awarded to project 1 for satisfactory completion of corrections.

HOMEWORK PROJECT 2, Due 11/6/07
More Realistic physical model: During project 2, you will measure response of the real system during normal operation; then you will compare theory from project 1 to experiment from project 2. Specifically:
1. Study your device and its bond graph. What are your input and output variables, and how do these compare with the bond graph variables?
2. Determine how to actuate the system and measure the input and output variables.
3. Bring your device to the lab (ETC 3.136) and collect data, either
   • Bode plots, similar to those constructed in project 1 (preferred).
   • Step response data, if the device operates in an on/off mode, or if it is not possible to input sinusoids at different frequencies.
4. Verify your overall system model from project 1, by comparing measured results to simulations of your model. If deviations exist, try to minimize these by “tweaking” some of the parameters of your model. In project 1, you estimated parameter values: some you are very confident of the values, others you are uncertain, but might have a range of variability and a nominal value. Tweak the uncertain parameters through their ranges of variability, until the simulated response from the model matches the measured response from your device.

The report should include:
• An introduction
• Procedure and methods for measurements, including sensors
• All formulations (relevant formulas)
• Results: measured data
• Comparison (and reconciliation) of theory to experiment
• A brief discussion of your results