1. **Instrument Review**
   - Pitot tube
   - Pressure measurement (U-tube, magnehelic gauge, digital micromanometer)
   - Hot wire anemometer
   - Tachometer

2. **Calculations Review**
   \[ Q = V \cdot A \]
   \[ TP = SP + VP \]

3. **Lab Exercises**
   **A. Enclosing hood**
   - Measure the face velocity for the hood.
   - What is the \( Q \) for the hood? ________
   - What is the hood static pressure? ________
   - What is the coefficient of entry for the hood?
   - Is this a compound hood?
   - What happens when you remove the grill in the hood?
   - How is data interpreted? What would results be compared to?

   **B. Capture hood**
   - Determine the capture velocity for a plain open duct hood at distances of \( x = d/2 \) and \( x = d \)
   - Measure the face velocity for the hood.
   - What is the \( Q \) for the hood? ________
   - Measure the hood static pressure? ________
   - What is the coefficient of entry for the hood?
   - Can you measure the vena contracta region?
   - How does the \( C_e \) you determined compare to a value from a text book?
   - What simple baffle modification would allow for greater capture velocity?
     Try your idea and measure the result.

   **C. System modeling & measurement**
   - Measure the velocity static and total pressure, in each branch by a pitot traverse.
   - Measure the velocity static and total pressure in the main duct after the junction by a pitot traverse.
- Compute the average velocity in each section.

Unequal increments, equal areas
- Does the total Q add up? Does the TP add up?
- What happens if you partially close off the blast gate?
- How is the air flow redistributed in the branches as you close the blast gate?
- Measure the static and total pressure at 3 points in the main duct.
- Estimate the loss coefficient for this pipe? Is your measurement reliable?
- Make a table to summarize the VP, SP and TP at different points in the system. Graph the system.

- Homework assignment: take your measurements and make a model for this system in the spreadsheet provided on the web site. Compare your measurements with the predictions.

Extra:
Experiment with different velocity measuring devices, the Alnor and the hot wire meter.