

CEE 342, Autumn 2005

Introduction to Fluid Mechanics

Laboratory Assignments

SEE [SYLLABUS](#) FOR DATES WHEN LABS ARE HELD

GENERAL LAB GUIDELINES

The following guidelines emphasize thoughtful data presentation, clear analysis, and concise discussion of methodology and results. Regarding the grading of labs, points will be allocated based upon the values noted on the grading sheets. To achieve the maximum number of points allocated, please follow the following guidelines*.

- 1) Introduction: Include a brief introductory paragraph stating the topic of the laboratory exercise and the overall purpose of the lab (e.g. examine the behavior of a Venturi meter and the relationship between volumetric flow rate and pressure drop across the meter).
- 2) Data sheet: A dated, original sheet(s) with lab times and/or sections
- 3) Schematic: A diagram of the apparatus, including where sampling took place.
- 4) Calculated results: Present at least one complete detailed hand calculation for each variable requested in addition to a tabular summary of all results. If you wish to present many pages of repetitive hand calculations, put them in a technical appendix so they do not interrupt the flow of the report. If you use a computer program such as Excel to perform analysis (e.g. linear regression), reference the computer program along with the specific program options used.
- 5) Plots: Label plots clearly, always including the units along with the axes titles.
- 6) Discussion: Here you should discuss the results of your tests. Briefly discuss any test problems, mistakes, etc. Always discuss measurement error. A paragraph at most will suffice. You have at least a few simple ways to estimate errors. For example, you can estimate what is the smallest scale mark you can reliably read off the instrument and express that as a percent of the average reading (e.g. you can measure the velocity to within 2% of the observed value). If a theoretical result is being tested, then mention whether your data is consistent with the expected result, given the measurement uncertainties.

*These guidelines apply to Labs 3 to 5.

[Lab #1 \(Venturi\) Handout](#)

[Lab #2 \(Continuity\) Handout](#)

[Lab #3 \(Energy Eqn\) Handout](#)

[Lab #4 \(Hydraulic Jump\) Handout](#)

[Lab #5 \(Pipe Flow\) Handout](#)