57:020 Mechanics of Fluids and Transfer Processes

Report Format

Section 1: Title Page
- Course name
- Title for the report
- “Submitted to:” Instructor's name
- Your name
- Your affiliation (Group, Section, Department)
- Date of report submittal

Section 2: Table of Contents
- Headings of subsequent sections and the page they first appear

Section 3: Introduction
- Statement of the problem to be studied in the lab
- Description of the basic physics involved in this problem
- Statement of hypothesis to be verified or question to be answered by this experiment

Section 4: Data Analysis
Separate Data Analysis into sub-sections on “Data Acquisition” (the quantities that were directly measured and “Data Reduction” (quantities derived from the raw data through further computation).

a) Data Acquisition
   - Table of raw data, with units and captions

b) Data Reduction
   - State the data reduction equations used in the analysis
   - Sample calculations for derived data, showing how each quantity was computed
   - Table(s) of derived data, with units and caption

Section 5: Uncertainty Analysis
- Determine (state) uncertainty components for the measured variables
- Determine uncertainty components and overall uncertainty for the results

Section 6: Comparison with Reference Data and Discussions
With the results of the experiment having been presented clearly and concisely, there arises the need to comment on their validity; so a comparison with theory or similar experimental work is crucial
- Brief statement of pertinent theory
- Plot the results using the overall uncertainty determined in Section 5 and discuss possible systematic errors and measurements responsible for the uncertainty in the data. Compare experimental results with theory
- A discussion of the trends observed in the results, and what these suggest of the theory and initial hypotheses
- Restate the experiment's objectives and describe how the questions raised in the Introduction were resolved.
- Describe further work or alternative ways to accomplish the objectives.

Section 8: Further Considerations
- Provide short answers to the questions addressed in the homologous section of the Lab handout

Comments:

1. The distinction between Data Acquistion and Data reduction must be remembered:
   - The Data Acquisition is simply a bare presentation of the measured (raw) variables.
   - The Data Reduction uses the above data to address the question(s) or hypothesis posed in the experiment’s purpose.

2. The following conventions in a graphical presentation should be followed:
   - Experimental data are plotted using symbols; different symbols for different quantities or cases.
   - Theoretical curves should be continuous lines.
   - The axes should be properly labeled; variable names and units should be specified.
   - The figures should be numbered and captioned.

Section 9: References

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2 points

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100 points