

CH EN 3453 – HEAT TRANSFER

Instructions and Notes for Final Project Report

DUE DATE: Wednesday, December 10, 2014 at 8:00 p.m.

SUBMISSION:

1. Save your complete report as a single file, either in PDF (preferred) or Microsoft Word format
2. Name your report “Lastname Firstname – Final Report.pdf” (or .docx)
3. Email your report to report@chen3453.com by the time indicated above

FORMAT: The reports must contain the following sections:

Title Page (report title, author, date)
Executive Summary (very brief paragraph summarizing the report)
Table of Contents (include page numbers)
1. Introduction
2. Theory
3. Experimental
4. Results and Discussion
5. Conclusions
Table of nomenclature (optional)
References
Appendices (optional)

SUGGESTIONS AND GENERAL OBSERVATIONS BASED ON PROJECTS PAST:

- Prof. Silcox has excellent resources for writing reports available at the link below. Students are encouraged to review this material, in particular the Short Guide to Technical Writing by Welthea M. Learned and ChE faculty. The link is <http://www.che.utah.edu/~geoff/writing/index.html>
- The idea behind the outline (the first thing you turned in) was to challenge students to think about the content of the individual “chapters” and to break each down into subsections. In general people do this pretty well, but this structure often does not carry over into the reports and many reports have only the major headings. Make an effort to include subsections in the final versions.
- Reports frequently lack captions for figures or tables. Each figure should have a caption BELOW the figure and figures should be consecutively numbered. Table captions go ABOVE the tables and should also be consecutively numbered (with their own numbers – don’t mix figure and table numbers). Refer to figures and tables by number in the text.
- References for information and data is frequently poor or completely missing. Read the referencing guide under “Formal Reports” on the link given in the first bullet above.
- Tables often have an astounding number of significant figures. The record is eleven! Limit it to three or at most four. Instead of 59,364.142862 Watts, call it 59,400 Watts.
- By default, MS Excel adds titles to charts. Charts in reports should not have a title, so be sure to remove any titles that Excel has added. Information about the chart (that would have been in the title) should be in the figure caption below the chart.
- If you use a figure that is not yours, but “borrowed” from another source, you must indicate that source and provide a full reference.
- Number equations within parenthesis in the right hand margin.
- Consider using a numbering scheme for headings: (1. Introduction; 1.1 Background, etc.). You should not have just one subheading, i.e., if you have a section 5.1 you need a 5.2.

A REMINDER OF WHAT SHOULD BE INCLUDED IN THE REPORT:

The following is actually quite general and applies not only to the heat transfer report, but all formal reports on experimental studies.

- **INTRODUCTION:** Introduce the reader to the field/technology about which the report is written. A very general schematic is often useful here. Wrap up with a brief paragraph explaining the objectives of the study.
- **THEORY:** Provide a quantitative explanation of how the process functions and introduce equations that will be used in evaluation of performance. This section frequently looks like a textbook. To help you focus this section, think about how you will evaluate the raw data that you take in the experiments. Describe that evaluation procedure with appropriate equations. You should refer back to this section, and perhaps specific equations, in the results section.
- **EXPERIMENTAL:** This should have at least two sections: equipment and procedure. Some labs may also have a section on sample properties or a section describing a computational model. The equipment subsection should provide key specifications and an understandable schematic diagram, as well as a few paragraphs describing what the equipment does. The procedure should explain, in past tense, how experiments were performed. Try to avoid rattling off a step-by-step SOP-style narration, and do not write it as a “manual” as though the reader is going to be doing the experiments themselves.
- **RESULTS AND DISCUSSION:** Should present *key* results, not necessarily every raw data point taken. Using the procedure outlined in the theory section, distill the results into the most important indicators of performance. Consider how the influence of independent variables (those things you adjust) affect performance. Avoid simply listing or plotting things by experiment number. Instead, try to identify trends. Consider reproducibility and associated uncertainty of the data.
- **CONCLUSIONS:** Summarize key findings of your project. Quantitative information (e.g., optimum operating conditions, ranges of heat transfer coefficients) is valuable. Finish up with a paragraph or two on what you would recommend to those will be researching in this area in the future.