**Requirements/Rubric for Final Project Report**

Spring 2017

The report is due May 12 at midnight.

* All reports must be submitted on line in pdf format. You are responsible for ensuring all of your figures, equations, and symbols get properly converted. Submit only one document and only the latest will be graded.
* All students must submit a report. This enables us to provide feedback to all group members.
* A form where students agree on relative credit assignment will be supplied.
* ***The late policy for this report is 10% per day off of 100% with no maximum penalty. You must submit a report to pass the class even if it is so late you will receive zero credit.***

The report must include the following sections and credit will be assigned based on content as indicated:

* A title page(1%) that lists the following information:
  + Title
  + Name of group members
  + Date of submission
* Table of contents – 1%
* Executive summary/abstract – 15% (this is a fairly high percentage, write carefully)
* Introduction – 10%
* Description of Methods – 10%
* Results and Discussion – 25%
* Summary and Conclusions – 10% (this is a fairly high percentage, write carefully)
* List of references – 2%
* Appendix – 3%
* All figures, tables, and equations must be numbered and cited in the text. – 3%

The above percentages add to 80%. The quality of your plots and schematics will count for 20%. Your plots will be evaluated according to the following criteria.

* All figures must have figure numbers and informative captions. 4%
* Clearly labelled axes where the fonts are large enough to read. They should have a legend if relevant. 4%
* The images should be of high quality (no Paint or cropping of bmp files) with no stretched aspect ratios. 4%
* The quantities you are plotting should fill the plot area while maintaining easy to read tick spacing. The use of whole number full scale values is highly recommended 2%
* Plot discretely obtained data as data points. They can be connected by lines or represented by a best fit. Do not plot points for densely obtained data or theoretical predictions.  The equation of the best fit line (if relevant) should be on the plot. 6%

Your document is easier to read when you use paragraphs to separate conceptual blocks of information/results.

The **executive summary** should include:

* A concise and precise summary of the goals of the project
* A concise and precise summary of the approach and methods
* A concise and precise summary of your major findings.

It should fit on one page, single spaced, 12 point font with 1 inch margins. It does not need to fill the space but it should be as complete as possible.

Your **Introduction** must begin with a paragraph or two describing the major thrusts of the project. This is where you set up the expectations for the results of the experiment. What did you expect to find and why? You should introduce any theory that guided the development of your experiment and was used to analyze your results. Make sure you properly reference any books, papers, or websites you used to prepare this section.

**Methods:** Carefully and methodically describe the methods and tools used to obtain your measurements. Include an uncertainty analysis if at all possible. This section should contain the results of any calibrations you performed. It would be valuable to characterize linearity, hysteresis, etc. and include confidence bands if applicable and possible.

**Results and Discussion**

* Methodically describe your results and discuss whether they match with the expectations you set up in the introduction.
* Do your best to have the text next to the figure or table you are referring to. Using single spaced text makes this easier.
* Put all tables of raw data in the Appendix. Only include tables that have results. Organize them in a way to facilitate easy evaluation of any comparisons you make in your discussion.

**Summary and Conclusions**

This should be 2-4 concise and focused paragraphs summarizing your results and major findings. It can be similar to your executive summary but without as detailed of a statement of purpose (maybe one sentence).

**References**

References must follow the guidelines described at:

<https://www.asme.org/shop/proceedings/conference-publications/references>

**Appendix**

* Raw data tables
* Programs

**Final suggestions:** The 80% score for the report will be objectively evaluated for accuracy and subjectively evaluated for clarity of communication. The results and discussion section credit assignment will be heavily weighted toward accuracy. The executive summary, introduction, and summary and conclusions will be heavily weighted toward clarity of communication (assuming what you write is consistent with the other sections). The methods section will be evaluated with roughly equal emphasis.

*I highly recommend editing one another’s writing. This requires that you have a draft done at least one day before it is due.*

*While you are free to divide up performing the analytical tasks, you will all be graded on the totality of what you produce. Therefore, it makes sense to carefully and independently check one another’s work. Do not get frustrated if you find a mistake in your partner’s analysis. It could have just as easily been you.*