# ME430 Project Proposals

## Why a Proposal?

The objective of a proposal is to provide a plan for solving a well-defined problem. The contents of a proposal are focused on two points of communication:

* A clear statement of your objective(s). An ideal objective statement should identify the independent and dependent variables, the accuracy to which the dependent variable will be measured, and the ranges in independent variables that will be considered.
* A plan which shows how your objectives will be carried out. The proposal must include sufficient documentation to persuade the reader that your approach is feasible and has a likelihood of success. The documentation on methodology does not have to be elaborate, but must clearly indicate that the methods proposed are sufficient in accuracy and design to carry out your objectives.

## Contents of a Proposal

### Introduction

1. State objectives in quantitative terms. The objective statement should contain:
   1. An identification of the independent and dependent variables.
   2. The accuracy to which the dependent variable will be measured.
   3. The ranges of the independent variables that will be considered.
2. Discuss the motivation for completing the project. Components of a motivation can include:
   1. The value of the measurement. Knowledge gained from the measurement will lead to what improvement?
   2. That the measurement has not been performed before. References to similar but not identical measurements in the literature will help establish the “newness” of the work.
3. Provide the background on the topic that allows the reader to place the motivation and objectives in context.

### Methodology

1. Describe (and if possible, sketch) the concept of your laboratory apparatus. Ideally, the sketch should be in schematic form, and include each component of the apparatus. Indicate measurement points on the diagram with mathematical notation. Explain the diagram in text. Identify all components by their physical principle, capability, and model/brand.
2. Describe the number and range of experiments that you will conduct. Usually, this consists of a block of experiments in which independent variables are changed and corresponding dependent variables are measured.
3. Describe your data reduction procedure that is used to process independent variable data into dependent variable results.
4. Show how the accuracy on the determination of the dependent variable quantitatively depends upon factors such as the accuracy of component measurements, or the repetitions required to circumvent statistical variation.

### Costs

1. List the apparatus and supplies that you will be required to purchase. Include only those items that will be purchased using our ME 430 budget.

### Reporting

1. State how reporting on your project will occur. State who will draft and edit the reports, when they will be delivered, and to whom they will be addressed.

### References

1. Likely places for reference include the motivation, and the methods section. See guidelines for preparation of final reports for reference citation format.

## Format of proposal

* For ME 430, the proposal will be accepted in the form of a report addressed to Gauss Engineering. Most ME 430 proposals are about 3-5 pages in length.
* Include a title page, and a table of contents.
* The writing style will follow the rules of composition.
* Text will be broken down into paragraphs.
* Each paragraph shall address a single subject, or closely related set of subjects.
* Spelling will be correct.