

ME Tools Project Grading Standards

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Abstract

This summarizes what is expected of the ideal student proposing various improvements to the *lab* (gamma) Stirling engine. If the actual student does less, the actual student's grade is correspondingly reduced.

1 Intro

There are two parts to the project grade; “NCE” for Neatness, Completeness, and Effort, and “CTV” for Creativity, Thoroughness, and Validity. The components of each are *multiplicative*, sine qua non.

For example, for Neatness: if the grader cannot readily read the project, NCE will be zero regardless of Completeness and Effort. Similarly for Completeness: doing nothing very neatly does not help either, so NCE will then be again zero, regardless of Neatness and Effort.

Similarly for CTV, if the proposal, in the way it is claimed to work, is invalid, everything stops. (If a proposal would actually work for reasons *other than given by the student*, then the student should not get credit for being clueless but lucky.)

2 Neatness, Completeness, and Effort

For the ideal student, in addition to what is mentioned above:

- All text is typed or readable without effort.
- All parts are there: abstract, introduction, proposal and its justification, implementation, and references.
- The abstract is an abstract. Not an introduction to what the student is going to do, but a summary what has been one.
- The actual values of discussed quantities have been looked up, and compared to competing possibilities.
- References are complete and thorough.
- There are no typos, repeated words, poor grammar, run-on sentences, and similar.

The ideal student has taken time to study the material:

- The ideal student knows what is the cylinder and what the piston/displacer, and does not mix them up.
- The ideal student recognizes that pressure differences are small between different regions at the same time, even though there are large temperature differences.
- The ideal student does not confuse the gamma lab engine with an alpha or beta design.
- The ideal student understands the working of the actual gamma Stirling engine as well as of the idealized Stirling cycle.