ME 3030 Problem Solving Format

Adhere to the following guidelines when solving homework, quiz, or exam problems. This is especially important to do when solving homework problems, even though they will not be handed in. Practicing this format at home will enable you to use it properly during a quiz or exam.

If these guidelines are updated you will be notified by e-mail that a new version has been posted on the course web page at:

http://cecas.clemson.edu/~jsaylor/teaching.html

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1. State what you are trying to find, what is known, and what your assumptions are. Preface each of these with the words: FIND, KNOWN, and ASSUME, respectively.

2. Show all intermediate steps in solving problems.

3. Include a diagram of the physical setup (if there is one). Label this DIAGRAM.

4. Identify the relevant system boundaries. Draw a dashed rectangle around the thing that you are analyzing. If it is a control volume problem, then draw a dashed rectangle identifying the control volume. If it is a closed system problem, draw a dashed rectangle around the fixed mass that you are analyzing.

5. Write neatly. If your work is unreadable, it is incorrect.

6. Make the difference between UPPERCASE and `lowercase` variables **very clear**. Make the difference between a variable and its$_{\text{subscript}}$ very clear.

7. Include units on all numbers that have a unit (i.e. for everything but dimensionless quantities, like quality). There is no such thing as a height of 5.0 or an energy of 24.3. There *is* such a thing as an energy of 24.3 Joules (or kJ, or Btu...).

8. No magic steps! A few lines of work followed by the correct answer invites the wrath of the grader. The same is true for work which obviously leads to an incorrect answer, but magically produces a correct answer. Write down the answer which results from the work that you did.

9. Solve integrals and derivatives by hand and show the intermediate steps in this process. Do not use a calculator to solve integrals or to obtain derivatives, unless you are explicitly instructed to do so.