

Design Documentation

**Knowing how to do a problem
is great**

BUT

**You also need to know how to
present it !!**

- So the grader can effectively grade the problem and understand your work.**
- So conclusions that are drawn can be effectively understood.**
- So future recall of the information can be understood by you or others reviewing your work.**

Follow a Standard Organization Layout

- 1. Initially state (or restate for book problems) the problem at hand.**
- 2. List any assumptions that you will need for the problem solution.**
- 3. List any constraints and regulations that need to be followed in the solution.**
- 4. Perform calculations in a step-wise and organized manner.**
- 5. Draw conclusions.**
- 6. Answer questions and provide recommendations.**

Design Documentation- Materials & Text

- **Always use pencil, not ink!**
 - Allows for easy corrections.
 - Doesn't run in wet labs or rain.
 - Mechanical pencils best for pointy tips.
 - F or H grade 0.7mm or 0.9mm best.
- **Use a straight-edge.**
 - For sketches, underlines, boxes, divisors, etc.
- **Use standard engineering grid calculation pads and paper.**
 - AMPAD 22-141, 142 or 144 or similar.
 - Always fill in your name, date, course and problem number in the formatted header.
- **Print in standard text.**
 - No script/cursive writing.
 - Print large enough to see, even if it uses more pages. Paper is cheap.
 - Watch for confusing text
(9 vs. 4, S vs. 5, 2 vs. Z)
 - Practice if you have messy technique.
 - Stick with a style and perfect it!

Design Documentation- Problem Set-up

- **Show what you know.**
 - Convert info in a problem statement into a listing of known values.
 - This helps to clarify what you have and maybe what you need to solve for.
- **Draw sketches to illustrate & clarify.**
 - It helps to see what the issue is in order to answer the problem.
 - It helps others see what the solution is in order to properly produce CD's with final information.
- **Include references to information obtained for use in solution.**
 - Tell where you got the values you used!!
Standard charts, tables, manuals, graphs, etc.
 - Attach copies of references for future ease of verification.
 - If used, nomographs with traced paths should be included as part of your design solution.
 - Attach computer output if used.

Design Documentation- Solutions

- **Be organized in your presentation.**
 - Use a step by step progression.
 - Don't scatter calculations all over paper.

ANSWERS

- **Units, Units, Units!!!**
 - Show the units of final answer
14 what? Miles? Feet? Tons? Dollars?
 - Are they the correct units (LF, SF, CF)
- **BOX or UNDERLINE the final answer.**
- **Inspect your answer for realism.**
 - Estimate/guess your answer before solving.
 - Compare to what you got.
 - Ask if it makes sense.
 - Check with another method or quick estimate.
- **Answer the question!!!**
 - Don't just give a number and be done if a question is yet to be answered.
 - Look back to see if you missed the question.

Design Documentation- Final Presentation

- **Fasten multiple sheets together.**
 - Staple, binder clips, binders.
- **Properly fold oversized sheets into the packet.**
 - Fold so that bound/fastened items can be unfolded and reviewed.
- **Review the problem and ensure all items are complete.**
 - References made to information used.
 - Question answered.
 - Name, date, title, etc. included.
 - Sketches dimensioned.

