

SPECIFICATIONS FOR HOMEWORK SUBMISSIONS

Objective:

Encourage development of proper documentation techniques required of professional engineers.

As you enter the workforce or go on to advanced study, the work you perform in solving or analyzing an engineering problem becomes just as important as your final solution. For many aspects of your career, the documentation of your work is a professional deliverable, and others must be able to follow your reasoning and your calculations.

The following specifications describe best practices for ensuring your work receives proper recognition and credit.

Specifications:

1. Neatness Counts!

A well-organized and legible homework paper is a must. An instructor cannot give you full credit for your work if they can't figure out what you did, and they can't provide you with helpful feedback if they can't understand your process for solving the problem, can't read your answers, or you do not provide enough information about the problem you're trying to solve.

A well-organized and legible homework paper must:

- Use white paper or green engineering paper – no purples, grays, pinks, etc. All instructors accept quadrille or blank white paper. Some instructors may accept white lined notebook paper or yellow paper; please check *before* you turn in the assignment. Odd colors make your pencil writing and even some ink writing difficult to read.
- Contain legible writing or printing. This consists of:
 - For computer generated (MS Word, for example), font sizes must be 11 pt. or greater, and use only simpler fonts (Arial, Courier, Times New Roman, for example).
 - For hand written, print or write large enough for someone with older eyes to comfortably read what you wrote.
 - For hand written, use a dark (#1 or #2) pencil or dark ink (black or blue). For mechanical pencils, use #2, 0.7mm or larger lead.
- Contain no more than 2 regular-length solutions or 3 short-length solutions per page. Too many solutions on a page becomes unreadable.
- Have logical flow. Organize your work by working left to right first then top to bottom. Do not put parts of your solution in random places or with no particular order – ***if an instructor can't understand your process or what you did, you will lose more points!***
- Stay within the margins, stay within the lines. The lines help you keep your writing a consistent size and keeps lines from overlapping, making your work easier to read. If

you use paper without line, try as best as possible to keep your writing moving horizontally across the page – don't write on angles and don't overlap sentences/work.

- Some faculty prefer you write on only one side of the paper – please check! If you the instructor is okay with you using both sides of the paper, please make sure you do not use ink that bleeds through the paper to the other side – this is very hard to read.
- Cross out mistakes instead of erasing. Most erasers do not completely remove the pencil work, leaving smudges or bits of the erased work that make anything you write over the space difficult to read.
- Put your name on the first page in a clear and obvious place.
- Bind it, clip it, or staple it! Make sure all pages are attached to each other. Don't rely on folding over the corner. The EE office has staplers, please use them.
- The instructors recommend you place all of your homework assignments for a class in a three-ring binder to keep as easy reference for studying, and to keep assignments neat and ordered. ***Some instructors require you to maintain a homework binder for the their classes – make sure to check with your instructor.***

2. Provide Complete and Properly Formatted Answers

- Provide information about the question or problem before you start your answer. This could be the original question, preferably in your own words, a set of given parameters with some statement of what you're supposed to find or solve for, or something similar.
- If the problem contains a diagram or circuit, that diagram or circuit should be given as part of your answer. This is especially true for circuit/electronics problems – having the circuit available and marked with the current and voltage labels you're using makes following your work much, much easier. Otherwise, the instructor can't tell what you're calling R_2 or i_x and the directions used for voltage and current.
- If you reduce, reorganize, simplify, or otherwise manipulate a circuit (or a system, block diagram, etc.) during the solution process, you must show this process in your solution.
- Use proper and legible units! If you forget units, you will lose points. If the instructor can't tell the difference between your symbols for milli, micro, and nano, you will lose points.
- No magic answers – you must show your work and provide a trail of work for the instructor to follow and see where your answer came from. If you solved a set of linear equations with your calculator or some program, make sure your solution shows the equations and/or matrices you are solving, and let the instructor know that's what you did.

- Use engineering units. Examples of acceptable and not acceptable include:

Good	Bad
10 k Ω	10000 Ω
0.35 mF	0.00035 F
2.4 μ A	2.4E-3 mA

- Use a reasonable amount of significant figures in answers. Do not give answers accurate to 8 decimal places when the original numbers only had five numbers between them. Don't give component values with 7 significant figures when real components come in standard values with at most 3 significant figures before a lot of zeros. For example:

250/13 = 19.23, not 19.2307692

Quote a designed resistor as 23.2 k Ω , not 23,178.2 Ω

- In general, avoid fractions as much as possible – use decimal notation.
- For short answer problems – always answer in complete sentences, and make sure to include at least one sentence that describes why you answered the way you did. Always provide an answer specific to the question/situation asked – don't simply copy down points from your notes or the instructor's power point slides (unless you know that's what the instructor wants you to do).