

Appendix D: Sample List of Coded Comments from 3.155J/6.152J

Codes are used for less-important comments: those that students should know about but that shouldn't distract them from the larger issues with their writing. The more important comments can be written directly on the paper for emphasis.

Your IC Letter may have comment codes on it. Refer to this list to find the meanings of the codes. You may also find it helpful to read through the whole list. Let us know if you have any questions.

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F Figures, Tables, and data in text

- F1 Make graphs as uncluttered as possible to focus attention on your results. Delete the border, background color, and gridlines.
- F2 Unless there's a reason to include the origin, adjust the axes to focus on your data.
- F3 Be sure graph labels are large enough to be read easily.
- F4 The graph title belongs in the figure caption. Putting a title both above the graph and in the caption is redundant; you don't need to put a title above the graph.
- F5 If you take a figure from another source, cite the source in the figure caption.
- F6 Every figure and table must be referred to in text. Refer to the table or figure by number, not position: "...as shown in Table 2," not "...as shown in the table below."
- F7 The table number and title belong *on top of* the table. (In contrast, *figure* numbers and captions go *below* figures.) Tables and figures are numbered separately.
- F8 Design tables and graphs to emphasize the points you want to make. For example, if you refer to the accumulation and depletion regions when you discuss a graph, label those regions on the graph.
- F9 Present the calculated and measured results in a table for ease of reference and comparison. Values that you want the audience to compare should be placed next to each other and should use the same units.
- F10 Abbreviate units ("10 meters" = "10 m")
- F11 Always include units on graph axes and in tables.
- F12 When units follow numbers, put a space between the number and the unit: "10 m" not "10m"
- F13 For decimals less than one, use an initial zero so the number will not be misread: "0.5 m" not ".5 m"
- F14 Present figures and tables in the order in which they are mentioned in text. When possible, put each figure and table on the same page as the reference to it in text (ideally *after* the reference).
- F15 Avoid starting a sentence with a number, symbol, etc. If you must start with a number, spell it out.
- F16 Punctuate equations as though they are grammatical parts of the text.

P Paragraph structure

- P1 Use unified paragraphs—each paragraph should be unified around a single topic.
- P2 Use a topic sentence to introduce the topic of the paragraph and to preview the structure of the paragraph if necessary. Ideally, the topic sentence should convey content.
- P3 Use a concluding sentence to clarify the main point of the paragraph, especially if the paragraph is long or contains many details. Otherwise you risk losing your audience in the details.
- P4 To improve connectivity between sentences, use the beginning of each sentence to link back to previous information. Then use that "old" information to introduce important new information, which should go in the stress position at the end of the sentence. For more information, see "The Science of Scientific Writing," by Gopen and Swan. A Google search will generate many hits.

W Word choice and grammar

- W1 "This" should be followed by its antecedent. For example, "this etch." Replace "it" by its antecedent.
- W2 Don't omit articles (a, an, the).
- W3 The word "data" is plural: "data are" "datum is"
- W4 "Since" may be ambiguous because it can refer to either time or cause & effect. "Because" is preferred.
- W5 The words "important," "vital," "essential," etc are often signs that information is missing. Rather than saying that something is important, give your audience the information they need to conclude for themselves that it's important. (If it's not really important, don't say it is.)
- W6 "In order to..." can often be written more concisely as "To..."
- W7 Put the action in the verb. Use "The wafers *were annealed*..." not "Annealing was performed on the wafers..."

A Abstract

- A1 The abstract should briefly summarize the purpose of your work, the methods, the results, and the conclusions, in that order. Background is not necessary and should be saved for the introduction.
- A2 Include a brief but *quantitative* summary of your results.

I Introduction

- I1 Your audience is familiar with microelectronics processing technology. You don't need to give basic background information.
- I2 For the purposes of 3.155/6.152, it's acceptable for your introduction to be only one paragraph long.

E Experiment

- E1 It's understood that the experiment section is chronological. You don't need to repeat "then" and "next" throughout.
- E2 You do not need to name the equipment you used unless the equipment is nonstandard, in which case a brief description may be more useful to your audience than a name. Remember that your audience is familiar with microelectronics processing technology.
- E3 Instead of simply listing the steps you followed (for example, BOE, HMDS, photoresist application, postbake, backside etches, photoresist strip), explain what you did: "The front of the wafer was coated with photoresist to protect the oxide and polysilicon layers during the backside etch."
- E4 Group the steps of the experiment logically into paragraphs. Begin each paragraph with a topic sentence to provide context for the steps described in that paragraph. For example, what was the end goal? (backside etch, patterning, characterization, etc)
- E5 Use consistent verb tenses. The Experiment section is usually written in past tense.
- E6 If you use subheads, use meaningful subheads. "Lab Session II" is not very informative; "backside etch" is more meaningful.
- E7 Write specifically about your work. Avoid general wording like "Resistivity *can be used* to calculate..." Instead, indicate what you did: "Resistivity *was used* to calculate..."

R Results

- R1 The Results section must contain text. Introduce the tables and figures in the text. You may also want to give an *objective* summary of your results. For example, "most of the values were within 5% of expectations, except..."
- R2 Be quantitative. For example, if you say two values are different (or similar), give a % difference.

D Discussion

- D1 Consider beginning the Discussion with an overview paragraph. What are the most important discussion points?
- D2 Do not refer to the appendices in the Letter. A Letter normally does not have appendices. Results that the audience needs in order to follow the discussion should appear in the body of the Letter.

C Conclusion

- C1 Summarize the most important points from the discussion. For example, "Most parameters were within 5% of expected values except..., which may have been caused by..."
- C2 Nothing new should appear in the conclusion (except, perhaps, recommendations for future work). Any points that are important enough to be mentioned in the conclusion should also be discussed in the Results and Discussion section.
- C3 Avoid vague words like "successful." What exactly do you mean by successful? Be quantitative.