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School of Engineering
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This handout is meant to augment the U of P School of Engineering's *Writing for Engineers* handbook. Examples and descriptions of common technical writing mistakes:

CAPITALIZATION

When referring to the title of something specific it should be capitalized. Example:

Our **group** accomplished every required task. However, **Group J2** did not! This is a problem encountered at many **universities**, but not at the **University of Portland**!

Names of elements are **not** capitalized: We tested 2024-T351 aluminum alloy.

WORD USE/SPELLING

Proper use of *its* and *it's*

It's means *it is* – example: *It's* reasonable to expect that to happen.

Possessive

An apostrophe is used to show ownership or close relation by a noun: Those are the cow's horns. That is the horse's tail-end. The bus' (or bus's) seats are comfortable. The steel's hardness was measured.

Its is possessive – example: *Its* strength lies in its numbers.

The word “affect” is a verb transitive (it is generally not a noun). If you can substitute the word “alter” (as in *change*), then *affect* would be the correct word not *effect*. A way to remember this is that both *alter* and *affect* start with an “a.” Example: *The cost of the material will alter my decision.* This has the same meaning as: *The cost of the material will affect my decision.* Or: *The strength of the steel was altered by heat treating.* This has the same meaning as: *The strength of the steel was affected by heat treating.* (affect = alter, affected = altered).

Affect is a noun when used as a psychological description: *He has a flat affect* (meaning, he has little personality). This is not a common use of the word in engineering documents.

The word “effect” is generally a noun. One way to tell a noun is that they may be preceded by “the” or “an” referring to “effect.” Proper use: *The cost of the material had **an effect** on my decision.* Don't be confused by modifying words between “the” or “an” and “effect”: *The cost of the material had **a** very significant **effect** on my decision.*

“Good” is an adjective, “well” is an adverb. Correct examples:

That is a good dog. He is doing very well.

Adverbs often end with “ly”. Example:

“*He ran very slowly.*” Not, “*He ran very slow*”. He may be slow, but he runs slowly.

The word “too” expresses excessive amount, it may also mean “also”:

*That took **too** long to complete. I want a present **too**.*

If comparing things, use “than” not “then.” *Steel is generally harder **than** aluminum.*

TENSE

When reporting work that you have performed (in a report, letter, memo, etc.) use past tense:

Incorrect: *The hardness will be measured after quenching.*

Correct: *The hardness was measured after quenching.*

If the work has yet to be completed, or if making recommendations regarding what should be done then use future tense.

Correct: *The hardness will be measured after quenching.*

Incorrect: *The hardness was measured after quenching.*

AVOID THESE WORDS

Avoid inappropriate use of the word “look.” Incorrect: *If you **look** at Figure 1 the hardness decreases as a function of tempering time.* (What if I don’t look at it? Will the hardness still decrease as a function of tempering time?)

Correct: *As shown in Figure 1, the hardness...*

Incorrect: *This test **looked** at the effects of...*

Correct: *The test investigated the effects of...*

Avoid inappropriate use of the word “efficient.” “Efficient” is ambiguous. It can mean efficient use of time, energy, resources, etc. If you use “efficient” it should be clear what it means.

Avoid using “prove” in technical writing. It takes very significant data to prove something.

Incorrect: *The data proves that apples always fall downward.*

Correct: *The data shows that apples always fall downward.*

ABBREVIATIONS AND SPELLING OUT

Avoid abbreviations in the text (acceptable for tables and graphs if there is insufficient room otherwise).

Use	Don't use
minimum	min.
maximum	max.
verses	vs.
Oregon	OR
January	Jan.
aluminum	Al
feet <i>or</i> foot	ft.
pound	lb.
laboratory	lab

Dollar sign comes before the value, cent sign goes after: It cost \$200. Gum costs 10¢

Spell out acronyms the first time used and the words used in the acronym should be capitalized. Example: *Aluminum has a Face Centered Cubic (FCC) crystal structure.*

In technical writing, spell out dates. Example: *The test will be conducted on July 20, 2009* (not 7/20/09).

In the text, write out “percent”. Incorrect: 21%. Correct: 21 percent.

Do not use the abbreviation “lab” – it should be written as “laboratory”

MEMOS, LETTERS, REPORTS

Reports are more formal than letters and memos. Report should be written in third person (avoid words like “we”, “I”, “us”, “our”, “you”, etc.)

Incorrect: *We measured the temperature.*

Correct: *The temperature was measured.*

Reports typically have headings, letters and memos do not.

CITATIONS

The reference citation is a part of the sentence in which it is used:

Incorrect: *According to Smith, the hardness is a function of carbon content. [1] This was observed in the results.* (Incorrectly has [1] part of the second sentence).

Correct: *According to Smith, the hardness is a function of carbon content [1]. This was observed in the results.*

Correct: According to Smith [1], the hardness is a function of carbon content. This was observed in the results.

Reference numbers should be in order of appearance in the text (i.e. the first reference cited is reference 1, the second reference is reference 2, etc.). If the same reference is used more than once it keeps the same number (i.e. if reference 1 is used later in the text it will still be referred to as reference 1). Other formats are acceptable; see UP School of Engineering's *Writing for Engineers* handbook.

What must be cited? If you obtain information (direct quote or not), graphs, photographs, equations, or anything else that you use in your document, you **MUST** cite it (i.e. reference it) in the text where the information is used! For photographs, graphs, data, etc., that you obtain from some source and use in a table or figure, you must cite it in the table or figure description. Things that are common knowledge (i.e. "it rains a lot in Portland") does not need to be referenced.

FIGURES AND GRAPHS

All figures and tables must be discussed in the text. Figure numbers and table numbers should be in order of appearance in the text. In reports, figure or table should appear shortly after first being discussed. For letters and memos, figures typically are at the end of the letter/memo or attached to the letter/memo.

All figures and tables must have a number and title. Figure numbers and titles go below the figure, table numbers and titles go above the table. The title must be concise but sufficient to describe the table or graph.

Graphs – Lines show expected trends. "Connect the dots" and "smooth connect the dots" are **not** trend lines.

Avoid redundant data. If the results are best presented in a graph, create a graph and exclude a table. For reports, you may want to include a table of the raw original data in an appendix.

If presenting figures in "landscape" mode (i.e. sideways) the top of the figure should go to the **left** of the page.

Graphs and tables must include units where appropriate.

ATTACHMENTS and APPENDICES

Letters and memos may have attachments, but not appendices.
Reports have appendices, but not attachments.

What belongs in the appendix? Things that are not significantly important to the body of the report. This includes such things as original data sheets, photocopies of vendor data, copies of competition rules, calculations, sample calculations and spreadsheets, etc.

What belongs in the body of the report, not in the appendix? Important things such as figures, tables and graphs directly related to the body of the report. If it helps the reader to understand what you are writing about, generally it belongs in the body.

What should be attached to a letter or memo? Since letters and memos are generally short (less than 2 pages), graphs and tables that take up a page, are usually considered to be an attachment. If they are small and can fit within the text of the letter, then they are directly part of the letter. If there are attachments for a letter, they must be listed at the bottom of the last page of the letter: ATTACHMENT: Figure 1 - graph of x versus y.

NUMERICAL REPRESENTATION:

Spell if it is a whole number that is ten or less:

Correct: There are ten people in the room.

Incorrect: There are 10 people in the room.

Correct: There are 21 people in the room

Incorrect: There are twenty-one people in the room

Always include units and appropriate significant figures.

Don't start a sentence with a numeral. You should rearrange the sentence or spell out the numeral.

Correct: The minimum drinking age is 21 years.

Correct: Twenty-one years is the minimum drinking age.

Incorrect: 21 years is the minimum drinking age.

Avoid lots of zeros.

Correct: It will cost \$12 million to build.

Incorrect: It will cost \$12,000,000 to build.

A digit has to appear before the decimal.

Correct: The length was 1.12 inches

Correct: The length was 0.12 inches

Incorrect: The length was .12 inches

PARAGRAPHS

Each paragraph should contain one main thought (thesis). Each sentence within the paragraph should be focused on that thesis. Paragraphs should typically contain between 3 to 5 sentences.

SENTENCES

Avoid redundancy within sentences.