ERE Writing Guide

1. Define your objectives

a. Before you begin any assignment, define the objectives of the project.
    i. What are you being asked to examine?
    ii. What do you want to achieve?
b. Put your project in context.
    i. Engineering coursework is driven by practicality: there is always a real-life application for the material you study.
    ii. If you can't determine the "why" of a particular assignment, ask your instructor for context – but first, try a library database, the index of your textbook, or even a google search to see how this topic is being discussed by other engineers. It's much easier to write a report if you understand the purpose of your project.

2. Write for your readers

a. In technical writing, **our primary goal is to convey information clearly and accurately, to enable effective decision making**.
b. Clear communication requires a common vocabulary and shared context between the writer and the audience.
c. Before you begin any writing project, first describe the intended audience.
    i. What do they already know?
    ii. What technical background can you assume they bring, and what further context do you need to give them within your report?
    iii. What might your reader hope to get from this report?
    iv. Don't hesitate to ask your professor to help you understand the typical reader of a given report. Faculty may also direct you to write a report for a particular audience.
d. Make a list of the ideas and information that you want to communicate.
e. As you complete each section, check that every new concept you introduce builds on either (a) common knowledge held by your intended audience or (b) context already established within the report itself.
f. Your readers may be busy, unfamiliar with your field of specialty, and/or managing multiple needs on any given project. To respect your reader:
    i. Write clearly and succinctly. Don't "pad" your work, or devolve into tangents.
    ii. Be honest. Don't misrepresent your contribution or make unsupported claims.
    iii. Minimize your reader's workload by putting critical information at the top of each section. Don't bury key results or recommendations.
    iv. Consider the report from your reader's perspective: if they need to make a decision based on your work, have you provided them with enough information to do so?
g. Every sentence in your report should be there for a reason: it should facilitate your audience's understanding of the material.

3. Tone

a. Tone refers to the social dynamic of your writing, and is closely tied to audience. Tones that you employ as a student include academic, professional, business casual, and colloquial.
    i. Academic writing is formal and follows strict genre guidelines. This writing is aimed for other specialists or students in the field, via a journal article, book chapter, conference paper, etc.
    ii. Professional writing is generally geared for a client, a supervisor, or a public audience. This is also formal writing, but its emphasis is on providing a deliverable rather than making an intellectual contribution to the field.
    iii. Business casual writing is writing shared between peers, when no oversight or publication is anticipated. Business casual may also be employed on some websites and social media, where a more informal voice is valued.
    iv. Colloquial language is that used among friends, family and social groups. Colloquial writing is often informal, employs local accents and slang, utilizes abbreviations and acronyms, and is most reflective of human speech. Colloquial language is built by community groups and their shared experience.
b. Unless you are instructed otherwise, assume that all of your ERE assignments -- including presentations! -- should use either an academic or professional tone.

4. Point of view, pronouns, active and passive voice, and tense

a. First versus third person point of view
    i. When you use first person, you speak as yourself. For example: I did this… or We found that…
    ii. When you use third person, you describe someone or something else. In technical writing, third person focuses the sentence action on the research, the data, or the design, e.g. The program defined... or These results demonstrate…
    iii. If necessary, you can also use third person to write about yourself as if you were someone else, e.g. The authors found that they needed to reference themselves.
    iv. Engineers should become comfortable writing from both first and third person points of view. Most formal writing (i.e. academic and professional) will be in third person; most informal writing (i.e. business casual and colloquial) will be in first. ASCE requires that all manuscripts be submitted in third person.
b. Pronouns
    i. Avoid using terms that assign gender to roles, e.g. The fireman reported that the breaker was faulty. Instead, use non-gendered terms, e.g. the firefighter. Never assume that a person is male or female based upon their role.
    ii. If you do not know the gender of a person, or you are describing an unknown person or people in the abstract, use they rather than he, he or she, or s/he. Referring to a person by their role, e.g. the client, also helps avoid gender confusion or misrepresentation.
c. Active and passive voices

i. Active voice is used when the subject of a sentence owns (operates) the action. The array provided 38% of the household's electrical needs.
ii. Passive voice is used when an action is done to the subject of a sentence. The line was severed by a backhoe.
iii. Generally, active voice focuses attention on the subject (the one who does), while passive voice focuses attention on the action (the thing being done). A balance of active and passive voices can keep the pace of your work from becoming sluggish (too much passive voice) or choppy (too much active voice).

d. Tense usage
   i. *Current* facts are typically written in present tense, e.g. California has {present tense} over 840 miles of coastline. *Historical* facts are written in the past tense, e.g. In 2014, the governor of California declared {past tense} a state of emergency due to drought.
   ii. Literature reviews and citations of outside work are typically in past tense, e.g. The team found {past tense} that overflow occurred in 18 of the 33 culverts surveyed (Gable 2014).
   iii. Work you have done (e.g. your methodology) is written in past tense, e.g. The distribution of oxygen was modeled {past tense} using a Fortran program.
   iv. Results, discussion and conclusion sections are largely written in the present tense, except when you reference actions done in the past. Therefore: These results demonstrate {present tense} the composite beam's incapacity to provide structural support during an earthquake… but also, The beam failed the first pressure test {past tense} and the experiment was aborted.
   v. Because your abstract includes an introduction/background, methodology, and results/discussion/conclusion, you will typically use a mix of past and present tenses.

5. Style compliance

a. Compliance refers to following the rules. If you install a 3" diameter handrail in your office stairwell, it will be out of compliance with building codes. Likewise, if you overrun page limits, use 1.5" margins, or do not provide complete citations, you will be out of compliance with the assignment.
b. Technical style requirements are contained within the ERE Style Guide, given as instructions for the assignment, and/or listed on the class syllabus. You should always follow ERE Style Guide rules, unless you have been directed otherwise by your instructor.
c. Note: *technical* style, which is format-oriented, should not be confused with *writing* style.

6. Pre-writing and editing

a. Pre-writing

i. Writers employ many different techniques to get ideas on the page. Some people draw graphics, others make lists, and some discuss ideas with a friend or colleague.
ii. Whatever methods you use, you will want to:
    1. Describe all of the project requirements, and decide how you will address each of them in your report.
    2. Track questions that arise during your project research, design, application, and analysis. Take the time to consider each question before you begin writing -- you'll describe your work more effectively if you've answered your own questions before you begin.
    3. Retain source information for any outside research, data or theories that you might discuss in your report.

b. Editing and peer review
    i. Whether you write a very rough first draft or finesse each sentence you type, it is imperative that you edit your work. Ideally, you should review each piece of your report at least:
        1. Once, after you first write that section;
        2. Again, a day or so later, when you have some distance from what you were thinking when you wrote your first draft;
        3. A third time, after it has been read by a friend, colleague, or tutor;
        4. And a final time, when your report is complete, and you can read each section in succession.
    ii. It is highly recommended that you read each section aloud as part of your editing process. Areas that cause you to stumble when speaking are likely to cause your reader to stumble too.
    iii. While peer review can be an uncomfortable process, you can gain valuable feedback if you give your reader some guidance. When you ask someone for editing input:
        1. Be clear about where you are in your writing process: is this a first or final draft?
        2. Tell your reader what you most want them to address. Do you need help with grammar or organization? Are you wondering if your argument is clear? Do you want feedback on your literature review, or need help tightening your abstract?
        3. Recognize that a peer edit of your work is a gift of time and effort! Be sure to thank your reviewer for their contribution -- and if their input improves your paper, make sure to include them in the acknowledgments.

7. Technical writing checklist

a. Objectives
    i. Do I explain what my project aims to achieve, and why?
    ii. Do each of my report sections support these goals, or I did veer into tangents?

b. Audience
    i. Do I provide enough information for my reader to make an informed decision?
    ii. Are there any pieces of information that need to be clarified for my intended audience?
    iii. Am I always honest with my reader, or did I misrepresent my work or make claims I can't support?
c. Organization
    i. Does each new idea build on either (a) common knowledge that I can reasonably expect my reader to share, or (b) information that I have already provided in the report?
    ii. Is there a logical flow from the Introduction through to the Conclusion or Final Solution? Do I need to rearrange any components, or add transitional sentences or explanations?
    iii. Are key ideas and results discussed at the top of each section, or does my reader have to dig for critical information?
d. Style
    i. Have I read my paper aloud, and modified any tricky or awkward phrases?
    ii. Do I have a balance of short and long sentences?
    iii. Are my paragraphs of a manageable size, and do I break my paragraphs between new ideas?
    iv. Do I avoid word repetition when possible?
    v. Can I make my points clearer by cutting text? Does every sentence "count"?
e. Vocabulary and tone
    i. Do I avoid casual or colloquial phrases?
    ii. Do I define all acronyms, abbreviations, and technical jargon?
f. Voice and tense
    i. Is my tense usage logical, and generally consistent within each section?
    ii. Did I follow assignment (or course) specifications for 1st or 3rd person point of view, and active versus passive voice?
g. Mechanics
    i. Have I run a spelling and grammar check on my final version?
    ii. Has a colleague, friend, or tutor reviewed my paper for grammatical mistakes?
h. Compliance
    i. Am I compliant with the ERE Style Guide?
    ii. Is all intellectual or creative work fully credited?
    iii. Did I complete all of the assignment requirements?