Engineering Communication for ECE 111 and Beyond

Part II: Exploration of Foundations and Preparation for the Final Report

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Agenda

- Why do engineers communicate? Activity and discussion
- What matters in engineering writing, and “empty language” traps, and formatting Advice for writing final reports
- Links to more resources and Q&A
Why do engineers communicate? How do they communicate?

Take a moment (about 3 minutes) to compose a paragraph or list to respond.
Why do engineers communicate?

To reflect on project plans and organize thoughts

To discuss project plans with teammates
To comment on peers’ work

To find out what is required
To inform others about their designs

To connect with other engineers and business leaders

To argue that specific design choices are appropriate
How do they communicate?

In academic reports
In face-to-face and web meetings
In posters
In presentations at fairs and expos and also during job interviews
In emails and letters
In project specification documents
In technology methods research reports
In design proofs and lab notes
What Matters in Engineering Writing

Engineers like writing that is **clear, concise, precise, well-organized** AND **professional** in tone.

- **Clarity**: the meaning is unambiguous ex. *John saw the man on the mountain with a telescope.*
  - There’s a man on a hill, and I’m watching him with my telescope.
  - There’s a man on a hill, who I’m seeing, and *he* has a telescope.
  - There’s a man, and he’s on a hill that also has a telescope on it.
  - I’m on a hill, and I saw a man using a telescope.
  - There’s a man on a hill, and I’m sawing him with a telescope.
What Matters in Engineering Writing

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- **Concise**: there aren’t more words than absolutely need to be there for meaning to be clear. ex. “What I’m basically saying is that the purpose of the machine is for monitoring what happens with the blood pressure.”

- **Precise**: ex. The terms fit the meaning exactly and perfectly. I was working on the sensor to make it get the right result.
What Matters in Engineering Writing

- **Well-organized**: Sections have headings and topic sentences that give them focus, supporting sentences are well-connected to main ideas, guiding language lets the reader know how the document is organized for clarity of organization.
What Matters in Engineering Writing

- **Professional tone**: Objective, respectful language is used that sends the message that the writer values the reader’s time and is serious and conscientious about the topic.

Hey there. I’m just checking in ’cause I know you said I was supposed to and well, is there something you want me to do right now?
Avoid “Empty Language” Traps

Using academic or professional language is a lot like picking up a foreign language, and it can be uncomfortable as times. It takes reading and practice to get better.

● Don’t just randomly insert language that seems “lofty” or that makes you sound “smart” either--that won’t work. (Eg. Of course, Obviously, As everyone knows, Naturally….etc) Can you think of others?
● These are empty phrases that waste space and actually have the opposite of the desired effect
● Use a dictionary if needed to use precise words, but there’s no need to just try to “sound” professional. Instead, focus on getting the meaning exact and clear and being objective and respectful in tone.
Formatting and Using the Template

● MLA, APA, and IEEE are guides to formatting. Why are they useful?
● Templates are also guides to formatting. What additional benefit is there to using a template?
● Combine style or template specification with the assignment specifications.

Preparation of Papers for IEEE TRANSACTIONS and JOURNALS (February 2017)

First A. Author, Fellow, IEEE, Second B. Author, and Third C. Author, Jr., Member, IEEE

Abstract—These instructions give you guidelines for preparing papers for IEEE Transactions and Journals. Use this document as a template if you are using Microsoft Word 6.0 or later. Otherwise, use this document as an instruction set. The electronic file of your paper will be formatted further at IEEE. Paper titles should be written in uppercase and lowercase letters, not all uppercase. Avoid writing long formulas with subscripts in the title; short formulas that identify the elements are fine (e.g., "Nd–Fe–B"). Do not write "(Invited)" in the title. Full names of authors are preferred in the author field, but are not required. Put a space between authors’ initials. The abstract must be a concise yet comprehensive reflection of what is in your article. In


If your paper is intended for a conference, please contact your conference editor concerning acceptable word processor formats for your particular conference.

II. GUIDELINES FOR MANUSCRIPT PREPARATION

When you open trans_jour.docx, select “Page Layout” from the “View” menu in the menu bar (View | Page Layout), (these instructions assume MS 6.0. Some versions may have alternate
Questions?

Open-Source Resources for Technical Writing

- The Communications Process *IEEE Communications Society*
- Style and Grammar *IEEE Communications Society*
- Use Plain Language *IEEE Communications Society*
- Taboo Words in Academic Writing *Scribbr.com*
- Scholarly Voice: Tone *Walden University Writing Center*
- Example Engineering Report, Noah Moser, *Carleton University*