

# Technical Writing for Proposals

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# Technical Writing Services for the College of Engineering

## What I Do

- Edit conference papers, journal papers, and reports for faculty
- Edit proposals for faculty
- Present the Technical Writing workshop series
- Other projects for the Dean's Office

## Technical Writing Services



Most engineers assume that one form of technical writing will be sufficient for all types of documents.

**This is absolutely not true.**

This presentation will help you sharpen your technical writing skills so that you have a greater chance of your papers getting accepted and your proposals succeeding.

What this workshop is about

## 2. Steps in Writing a Proposal



[https://www.google.com/search?hl=en&site=imghp&tbm=isch&source=hp&biw=1280&bih=911&q=writing+a+proposal&oq=writing+a+proposal&gs\\_l=img.3..016j0i2414.1273.3959.0.5063.18.15.0.3.3.0.121.1234.13j2.15.0....0...1ac.1.32.img..1.17.1150.ilgbbqNxwvM#hl=en&q=writing+a+proposal+%2B+cartoon&tbm=isch&facrc=\\_&imgdii=\\_&imgrc=YnKPddtQAhY1QM%253A%3Bq7TaB5IEpt9EaM%3Bhttp%253A%252F%252Feducation.msu.edu%252Ffirtl%252Fgrad%252Fimages%252Finstructions\\_Cartoon.jpg%3Bhttp%253A%252F%252Feducation.msu.edu%252Ffirtl%252Fgrad%252Fwrite.asp%3B500%3B279](https://www.google.com/search?hl=en&site=imghp&tbm=isch&source=hp&biw=1280&bih=911&q=writing+a+proposal&oq=writing+a+proposal&gs_l=img.3..016j0i2414.1273.3959.0.5063.18.15.0.3.3.0.121.1234.13j2.15.0....0...1ac.1.32.img..1.17.1150.ilgbbqNxwvM#hl=en&q=writing+a+proposal+%2B+cartoon&tbm=isch&facrc=_&imgdii=_&imgrc=YnKPddtQAhY1QM%253A%3Bq7TaB5IEpt9EaM%3Bhttp%253A%252F%252Feducation.msu.edu%252Ffirtl%252Fgrad%252Fimages%252Finstructions_Cartoon.jpg%3Bhttp%253A%252F%252Feducation.msu.edu%252Ffirtl%252Fgrad%252Fwrite.asp%3B500%3B279)



Image Source Page: <http://www.historiann.com/wp-content/uploads/2010/05/audience.jpg>

## Know your audience



- Knowing your audience is critical to writing a good technical document – or any written material, for that matter.
- If people think you do not understand who they are and what they are interested in, then:
- **They simply won't read your work.**

Know your audience

# The Writing Process

- Peers in your specific field?
- Peers in your general field?
- Technical people not in your field?
- A non-engineering but professional audience?

Decide who is your  
**primary audience.**

Understand who are your  
**secondary audiences.**

Know your audience

Proposal writing is a **very** stressful process

If you understand from the outset that the proposal process can be stressful, then you can plan your strategies more effectively.

- Tight deadlines.
- A great many rules and requirements.
- You are emotionally invested in the result.
- The stress increases with the number of collaborators involved.

## Technical Writing for Proposals

Knowing who is reading and evaluating your proposal is extremely important.

As with papers, know your audience.

- Technical readers, not necessarily in your field of expertise.
- Financial and legal advisors.
- Government officials.

## Technical Writing for Proposals

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Your audience sees thousands of proposals

- They quickly know what is genuine and what is not.
- They want you to cut to the chase rather than create elaborate explanations.
- They want you to answer their questions very specifically.



## Technical Writing for Proposals

In some proposal style guides, it is actually written “...if you do not comply with this format, **we will not look at your proposal.**”

You **must** follow the style guide or risk rejection

Sample proposal style guide

Grants.gov and Fast Lane for National Science Foundation (NSF) proposals

[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg)

## Technical Writing for Proposals

If you don't create a calendar or checklist for milestones and deadlines, you risk either forgetting something or missing your deadline.

Create a milestones and deadline checklist

- This helps you keep track of all the forms and documents
- Give a copy to all collaborators, but make sure one person is responsible for tracking everything.
- Allow yourself plenty of 'slip room' in case of delays.

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Jan 1	2	3	4	5	6	7
		<b>Kickoff meeting of collaborators</b>			Bio sketches and current & pending support	
8	9	10	11	12	13	14
	1 <sup>st</sup> draft sections of Narrative		1 <sup>st</sup> draft of Project Narrative to Tech Writer		Complete all required forms and check	
15	16	17	18	19	20	21
		1 <sup>st</sup> draft Project Summary		1 <sup>st</sup> draft of Data Management Plan		
22	23	24	25	26	Jan 27	28
	1 <sup>st</sup> draft budget	Final drafts complete	1 <sup>st</sup> draft budget narrative to OSP	All final docs submitted to OSP	<b>Deadline 5 pm EST</b>	

## Writing suggestions

- **Really** know your audience
- Know the style guide
- Write your heart out
- Check the details
  - Compliance to requested information
  - In-text citations and references
  - Conformance to style
  - Grammar and punctuation
  - Equations, figures, and tables
- Create a recognizable ‘look’
  - We have done this for UNLV’s College of Engineering
  - It is a recognizable logo in the footer
- **Know when to stop!**

## Technical Writing for Proposals

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## Please try to avoid:

Using the word “transformative” or “innovative”

- This challenges the reader to refute your claim.
- Instead, write such a thoroughly good proposal that the reader will declare for themselves that your work is transformative or innovative.

## Technical Writing for Proposals

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## Final thoughts

Winning a proposal is a complex process

1. Quality of research
2. Need for this kind of research
3. Quality of proposal writing
4. Political aspects
5. Funding aspects
6. Many more factors involved

The point of creating a well-written proposal is to make sure that elimination will not occur to due Factors 1, 2, and 3.

## Errors common to engineers...

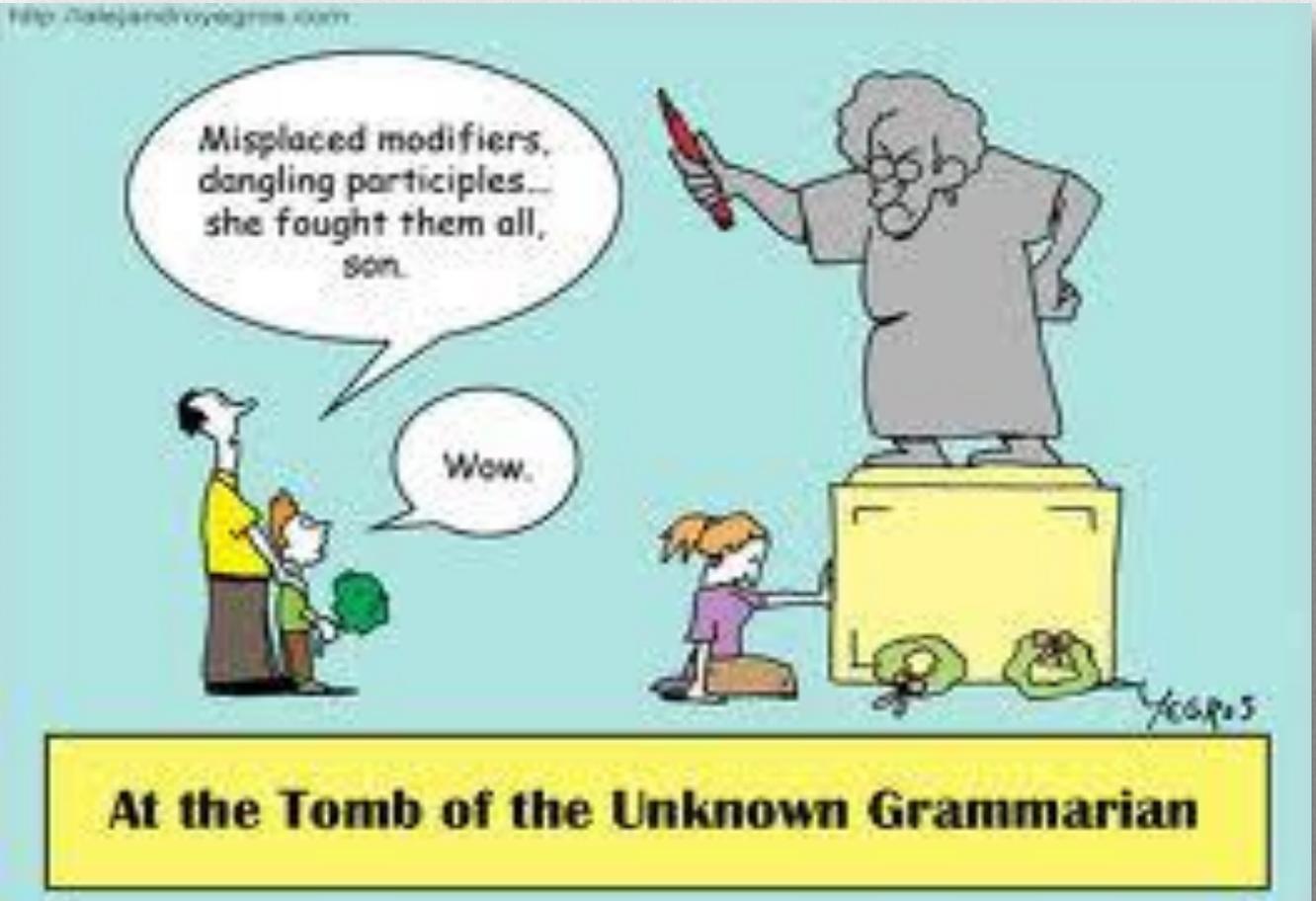


Image Source Page: <http://jeffrehill.typepad.com/.a/6a00d8341d417153ef01310f66dd21970c-800wi>

# Grammar and Punctuation Basics

# Acronyms

- You **must** write out an acronym the first time you use it in the body of the paper.
- Write the term first and then put the acronym in parentheses.
- Also write out the acronym in the abstract. However, you also must write it out again when first used in the body of the paper.
- If you have a great many acronyms, and you use them frequently throughout the paper, it is a courtesy to your readers to provide a Glossary list at the end of your paper.

## Acronyms

## APA Style for numbers

- Words for 1-9 and numerals for 10 and above
- Use numerals for:
  - Units of time (except if approximate)
  - Dates
  - Ages
  - Numbers as part of series
  - SI units

## IEEE Style for Math

- Variables are set in italic; vectors and matrices are usually boldface italic.
- Remove commas around variables in text.
- Always add a zero before decimals, but do not add after (e.g., 0.25).
- Spell out units in text without quantities (e.g., where the noise is given in decibels).
- Numbers and units used as compound adjectives should be hyphenated only if needed for clarity (e.g., 10-kV voltage; 5-in-thick glass).
- Use thin spaces (instead of a comma) between numbers in tens or hundreds of thousands (e.g., 60 000, 100 000, but 4000).
- Use zeroth, first,  $n$ th,  $(k+1)$ th, not 0th, 1st, 2nd, 99th,  $n$  th ,  $(k + 1)$ st.
- Use the word “equation” at the start of a sentence only, but in text just use the number [e.g., in (1)], unless describing an equation, e.g., see “Darlington equation (1).”
- The slash is used in place of the word “per” when it leads to the clarity of the sentence (e.g., the ratio of 16 samples/s to 35 samples/s as compared to...).
- Use “indices” instead of “indexes” when referring to subscripts.
- Plural variables have an “s”.

## Colons and Semi-colons

- This is a very common issue with engineering documents.
- Because most papers and proposals include difficult concepts and equations, it is very important to use commas and semicolons correctly in order to help the reader.
- Avoid the overuse of parentheses – again, this will cause ‘brain freeze’ in deciphering a lengthy and difficult sentence.
- After you have written your paper, read it as if you were the audience and try to break up the longer, more difficult sentences and paragraphs.

## Hyphens

- If a noun is the object of the sentence, then the modifier before it is not hyphenated:

The diameter of the glass tube was 10 mm.

- If the noun is part of a modifying phrase, then hyphenate:

The glass tube had a 10-mm diameter.

## **i.e. and e.g.**

- Engineering writing is very complex and hard to follow.
- In Latin, 'i.e.' means 'that is' and 'e.g.' means 'for example.'
- It will be easier on the reader if you simply use the English words instead of the Latin acronyms.

## That and Which

- “**That**” is used with restrictive phrases – phrases that are essential to the sentence.
- “**Which**” is used with nonrestrictive phrases – phrases that are not essential to the sentence.
- When you use ‘which,’ a comma precedes it.

## Different and Various

- ‘Different’ is best used in the context of two dissimilar items:

Two entirely different methods were used to analyze the process.

- ‘Various’ is best used to describe the use of several types of items, some similar, some not so similar.

Various studies in the literature alluded to this issue.

## Please try to avoid:

### Long, long sentences

- Rule of thumb: read it aloud, and if you have to take a breath to finish it, it is too long.
- Try to break up long sentences – your readers will thank you.

### Long, long paragraphs

- One paragraph for one thought idea.
- If your paragraphs are too long, a key idea might be missed.
- Also, your readers give up trying to it.

## Build-A-Phrase

Sometimes, you can have one too many nouns modifying an object, confusing the reader.

Category 1	Category 2	Category 3	Object
data	analysis	evaluation	<b>mechanism</b>
cost	estimation	probability	<b>model</b>
modified	full-scale	real-time	<b>requirements</b>
proposed	controlled	online	<b>study</b>
sustainable	variable	alternative	<b>process</b>
traditional	operational	derived	<b>framework</b>
potential	optimized	distribution	<b>criteria</b>
effective	dual	threshold	<b>formation</b>
relevant	intensive	testing	<b>capabilities</b>

Too many nouns modifying an object

## Build-A-Phrase

Sometimes, you can have one too many nouns modifying an object, confusing the reader.

Example:

“in a tap-water-filled pan.”

C’mon guys!

“in a pan filled with tap water.”

Too many nouns modifying an object

# In Conclusion

- Technical writing for papers, reports, and proposals take as much care as your actual research
- Different writing styles are used for papers, reports, and proposals
- Keep your reader in mind at all times
- Comply with the journal style guidelines
- Editing and refining your writing is a key part of the process