The Style of Technical Writing

The technical style has its own peculiarities and features. Let's consider the definition of the word "technical". It can be defined as "something having to do with practical, industrial, or mechanical arts or applied sciences." Now, let's consider the definition of the word "style". It can be defined as,

1. "Proper words in the proper places." Jonathan Swift
2. "Dress of thoughts." Seneca and Lord Chesterfield
3. The way a writer puts words together into sentences, arranges sentences into paragraphs and groups paragraphs to make a piece of writing express thoughts clearly.
   In general, technical writing has a degree of formality, and it generally focuses on a specific subject with the purpose of making something happen or sharing useful information or knowledge. Ten general attributes of technical writing are listed and described in the following sections:
   • It pertains to a technical subject.
   • It has a purpose.
   • It has an objective.
   • It conveys information/facts/data.
   • It is impersonal.
   • It is concise.
   • It is directed.
   • It is performed with a particular style and in a particular format.
   • It is archival.
   • It cites contributions of others

Technical style is the way you write when you deal with a scientific or technical subject.
A technical communications writing style is (almost always) **concise, precise, direct,** and **well organized**. The following sections outline useful tips and best practices, but know that these are only a starting point. Writing style is something you must be aware of and continually work to refine as you develop your communication skills. **This style can be achieved with the understanding of the following major ideas:**
SCOPE: Simplicity, Clarity, Objectivity, Preciseness, Economy

1. Simplicity:

Technical reports use formal English, direct language, and simple terms. Employ correct scientific terms and conventions for engineers. Replace words that are a problem for the foreign reader, such as the verb "do" and words with multiple meanings (feel, do, as, like).
In Computer Science, simplicity is critical because technical documents are often read by multidisciplinary audiences such as software testers, managers, users, and researchers. Overuse of slang, jargon, clichés, or pompous language can cause misinterpretation of algorithms, system behavior, or research findings.

1.1 Formal English

Colloquialisms (local or regional expressions) are characteristic of ordinary spoken or written communication that imitates informal speech, which may not carry the expected meaning. Examples include "gonna" for "going to" and "passed on" for "died."
Jargon, or slang, is terminology that is used by a particular group of people in a specialized field; it may not be understandable by any other group or individual. If jargon is used, define or explain the meaning. For example, a "hydrostat transmission" is jargon for a "variable pump hydraulic transmission with infinite speed variability." Examples of slang include "hang on" for "wait" and "run" for "computer simulation."
Clichés, when first created, were vivid descriptions of something that was current in the minds of the people. As time passed, the descriptions lost their original meaning, and no longer represent descriptive text (e.g., avoid like the plague; a can of worms; in the long run; and by the same token). Technical

writing must also be void of recent and current clichés. Sexist language is inappropriately gender specific.

Cliché	Possible Replacement
Bite the bullet	Sacrifice
Don't mince words	Be precise
Drop in the bucket	Tiny
Feather in your cap	Accolade
Happier than a calm at high tide	Satisfied
In this day and age	Today
Ins and outs	Details
Nitty gritty	Details
No mean feat	Difficult
Only time will tell	Eventually
The world is your oyster	An opportunity arises
Whets the appetite	Invites

1.2 Gender Friendly

To prevent bias, eliminate gender specific words to describe a category of people who could be either male or female. Do not use adaptations, such as he/she, because they hinder the text flow. As alternatives, use plurals, change words, or simply say he and she, his or her, him and her. This can be achieved through the following techniques:

1. **Avoid Personal Pronouns Altogether:**
   Sexist Language: During his first day on the job, any new employee in the toxic-waster laboratory must report to the company doctor for his employment physical.
   Nonsexist Language: During the first day on the job, each new employee in the toxic-waste laboratory must report to the company doctor for a physical.
2. **Use Plural Pronouns instead of Singular:**
   Sexist Language: Each geologist should submit his time sheet by noon on the Thursday before checks are issued.
   Non Sexist Language: All geologist should submit their time sheet by noon on the Thursday before checks are issued.
3. **Use forms like "He or She," "Hi or Hers," and "Her or Him"**
   Sexist Language: The president made it clear that each Alpha branch manager will be responsible for the balance sheet of his respective office.
   Nonsexist Language: The president made it clear that each Alpha branch manager will be responsible for the balance sheet of his or her respective office.
4. **Shift to second-person pronoun**
   Sexist Language: After selecting her insurance option in the benefit plan, each new nurse should submit her paperwork to the Human Resources Department.
   Nonsexist Language: Submit your paper work to the Human Resource Department after selecting your insurance option in the benefit plan

Examples:

1. The system kinda crashes when the user messes with the input. (informal)
   The system fails when the user enters invalid input. (Formal)
2. We're gonna run the code and see what happens.
   The program will be executed to observe its output.
3. The program died after too many requests.
   The program terminated due to excessive requests.

4. This algorithm is a piece of cake to implement.
   This algorithm is easy to implement.
5. Each programmer should submit his code before Friday. (gender biased)
   All programmers should submit their code before Friday. (gender friendly)

1.3 Avoid Gobbledygook

The technical style demands formal yet simple language. Use technical words only when you really need to. Avoid unnecessary jargon and gobbledygook. Gobbledygook refers to unintelligible, pompous, and stiff language.

Jargonized and pompous language	**Simple and formal**
We will use the input of each department to finalize our game plan.	We will consider the suggestions of each department to complete our programming.
At this juncture, the aforementioned procedure should be utilized.	The plan which we discussed should be used now.
We should commence operational capabilities in systematic increments.	We should begin the project step by step.
It just isn't politically correct to suggest a purchase company that is played.	It just isn't smart to suggest a purchase from a company whose sales are failing.

Activity 1: The following paragraph reports a software failure but contains errors related to informal English, difficult vocabulary, slang, jargon, clichés, and gender-biased language. Rewrite the paragraph by ensuring:

- Formal English
- Simple and clear vocabulary
- No slang, clichés, or unnecessary jargon
- Gender-neutral and inclusive language

The app totally freaked out during deployment, and the guy running the system said the code went nuts. At this juncture, the aforementioned module failed big time, opening a can of worms. Every programmer should fix his part ASAP so things don't go south again.

Activity 2: Obscure words make the following sentences difficult to understand. Improve the sentences by revising the difficult words and making them more easily understood:

a) As you requested at the commencement of the year, I am forwarding my regular quarterly missive.
b) Can you assist us in ascertaining the causes pertaining to yesterday's mechanism malfunction?
c) In lieu of further discussion, we want to state in the affirmative that what transpired was due to the fact that the vehicle had insufficient braking capabilities to avoid the collision.

2. Clarity

The most important criteria for effective technical writing is clarity. If the audience responds to a memo, letter, report, or manual with, "Huh?" what has the writer accomplished? If the correspondence is not clearly understood, the reader will either call the writer for further clarification, or just ignore

the information. In either case, the writer's time is wasted; the reader's time is wasted; the message is lost.

Clarity, however, is not just a time concern. Think of it from this perspective: your company has written an installation manual for a product. The manual, unfortunately, is not clear. When the reader fails to understand the content, three negatives can occur:

- **BAD—**The equipment is damaged. This requires the owner to ship the equipment back. The company will replace the equipment, costs accrue, and public relations have been frayed.
- **WORSE**— The owner is hurt, leading to pain, anxiety, doctor's bills, and bad public relations.
- **EVEN WORSE**— The company is sued. The company loses money, the writer of the manual loses a job, and public relations are severed.

Clarity can be achieved:

2.1 Provide specific detail

One way to achieve clarity is by supplying specific, quantified information. If you are using vague, abstract adjectives or adverbs, such as *some* or *recently,* your readers will interpret these words in different ways.

Look at the following example of vague writing caused by imprecise, unclear adjectives.

Before

Our latest attempt at molding preform protectors has led to some positive results. We spent several hours in Dept. 15 typing different machine settings and techniques. Several good parts were molded using two different sheet thicknesses. Here's summary of the findings.

First, we tried the thick sheet material. At 240 F, this thickness worked well.

Next, we tried the thinner sheet material. The thinner material is less forgiving, but after a few adjustments we were making good parts. Still, the thin material caused the most handling problems.

After

During the week of 10/4/14, we spent approximately 12 hours in Dept. 15 trying different machine settings, techniques, and thicknesses to mold preform mold protectors. Here is a report on our findings.

0.030″ Thick sheet

At 240 F, this thickness worked well.

0.015″thick sheet

This material is less forgiving, but after decreasing the heat to 200F, we could produce good parts. Still, material at 0.015″causes handling problems.

2.2 Answer the questions

A second way to write clearly is to answer the reporter's questions-who, what, when, where, why, and how. This flawed memo, written by a manager to a newly hired employee, highlights the importance of clarity.

Date: March 5, 2004
To: Michelle Fields
From: Earl Eddings
Subject: Meeting
Please plan to prepare a presentation on sales. Make sure the information is very detailed.
Thanks.

- **What do you know in this memo?**
- **What additional information should the writer have included for clarity?**

What don't you know in this memo?

What additional information should the writer have included for clarity?

Reporter's Questions Checklist

Who is the audience? Who will know what? Will the audience know a great deal (High Tech)? Will the audience know a little about the topic (Low Tech)? Will the audience know nothing about the topic (Lay)?

What do you plan to do? What do you want the audience to do? What do you want to know?

When should the job be completed? What's the turnaround time? What's the timetable? What's the desired schedule? When do you need an answer?

Where will the work take place?

Why is the task being undertaken (the rationale, motivation, goal)? Why is the desired date important?

How should the task be performed? What's the preferred procedure?

Using the Reporter's Questions Checklist as a prewriting tool, the previous memo could be revised to achieve greater clarity. Here is an example of a revised memo.

Date: March 5, 2022
To: Michelle Fields
From: Earl Eddings
Subject: Sales Staff Meeting
Please make a presentation on improved sales techniques for our sales staff. This meeting is planned for March 18, 2022, in Conference Room C, from 8:00 a.m. - 5:00 p.m.
Our quarterly sales are down 27%. Thus, we need to help our staff accomplish the following: 1. Make new contacts. 2. Close deals more effectively. 3. Earn a 40% profit margin on all sales.
Use our new multimedia presentation system to make your presentation. With your help, I know our company can get back on track.
Thanks.

2.3 Use familiar and easily understandable words: Another key to clarity is using words that your readers can understand easily. Avoid obscure words and be careful when you use acronyms, abbreviations, and jargons.

Obscure words	Alternative words
Accede	Agree
Subsequent	Later
Inasmuch as	Because
Ascertain	Find out
Cognizant	Know
Remittance	Pay
Supersede	replace

Using Acronyms, Abbreviations and Jargons

In addition to obscure words, a similar obstacle to readers is created by acronyms, abbreviations, and jargons.

2.4Clear Pronoun Reference:

Scientists, engineers, and other technical people sometimes use full nouns phrases repeatedly to avoid being "imprecise". They have heard of cases, perhaps, where a single misinterpretation of a pronoun by a single reader has led to some accident or mishap, which in turn has led to the writer's company

being sued for damages. Therefore, they tend to avoid pronouns and demonstratives altogether, preferring instead to repeat full noun phrases over and over. This strategy is certainly a safe one, and indeed it should be used in appropriate circumstances **(such as when writing operating instructions for a potentially hazardous machine or when writing a legally binding contract).** There are many circumstances, however, where such caution is uncalled for, and where in fact it simply disrupts the coherence of the text.

2.5Accuracy

Effective technical writing must be correct, whether grammatically, mathematically, electronically, etc. Errors in technical writing make the company and the employee look bad. More importantly, errors can lead to damages, injuries, lawsuits, or just embarrassment and misunderstandings.

Accuracy has three main aspects:

a. **Document accuracy** refers to the proper coverage of your topics in appropriate detail. Often an accurate document needs to focus clearly on a problem. Document accuracy is generally cultivated by a clear problem statement and by a preliminary outline. Theses writing tools help you focus your writing effort by reducing your data in a way that solves a theoretical or practical problem.

b. **Stylistic accuracy** concerns the careful use of language to express meaning. Accurate language requires the careful use of paragraph and sentence structure and word choice to describe and analyze your topics effectively. As a writer, you gain command of accuracy by studying the elements of style a by learning to apply those elements to your drafting, revising, editing, and proofreading. Stylistic accuracy is also a matter of using words precisely.

c. **Technical accuracy** requires stylistic accuracy but is not based solely on it. The effective document in science and technology must be grounded in a technically accurate understanding and representation of the subject. Technical accuracy depends on the writer's conceptual mastery of the subject and its vocabulary, as well as on his or her ability to analyze and shape data with minimum of distortion. In science and technology, enormous creative energy is given to mastering this technical aspect of subject development.

Try these proofreading techniques:

- Use the computer's spell check—remember, however, that a spell check will not catch form if you mean from, to if you mean too, or except if you mean accept.
- Let it sit—for a day or a weekend. When the document is cold, students are more objective about their own writing.
- Use peer evaluations—others will see the errors we miss.
- Read it aloud—sometimes we can hear errors.
- Read it backwards—then you read words out of context. You cannot anticipate the next word.

2.6 **Numbers as Words**

a. Generally spell out isolated numbers from one to ten.
The discussion lasted for ten minutes.

b. Unless emphasizing them, spell out indefinite numbers that may be expressed in one or two words.
Approximately thirty appliances were damaged.

a. Spell out a number that introduces a sentence. If the number is long, recast the sentence to avoid awkwardness.
Twenty people attended the lecture.

c. Spell out common fractions that are used alone. However, use figures in writing a mixed number.
He refused to accept his one-fourth share.

The hike was 10 ½ miles long.

d. When two numbers come together, express one in figures and the other in words. As a rule, spell the first number unless the second number is a significantly shorter word; i.e., **Sixty $5 bills or 500 four-page booklets.**

e. When rounding numbers, spell out million or billion to make reading easier.

This tax legislation will increase revenue by $7 million.

2.7 Numbers – Text or Digits

a. Generally use numerals to express all exact numbers above ten.

The corporate file has been missing for 31 days.

b. Use the written form of a number for values 10 and below except to express market quotations, dimensions, temperature, decimals, street numbers, pages and divisions of a book, time, weights and measures, and identification numbers.

The experiment had three independent variables staged at 5, 10, and 15 degrees Kelvin.

c. If several numbers in a sentence perform similar functions, express them uniformly. If one is written as a figure, write all as figures.

The inventory shows 21 ranges, 9 refrigerators, 37 washers, and 10 dryers.

The 32 tables sold in five days. (The numbers do not perform similar functions.)

2.8 That and Which

Generally "that" defines and restricts; "which" provides additional information.

"That" is used restrictively to narrow a category or identify a particular thing. The information following "that" is critical to the reader's understanding.

The article that was printed in the newspaper yesterday is inaccurate.

"Which" is used nonrestrictively to add some descriptive but incidental information and is preceded by a comma, a dash, or a parenthesis.

The ballerina was dancing around the room wearing a baseball cap, which is not something you would expect.

"Which" is used restrictively only when it is preceded by a pronoun.

Realize that you will be asked for your opinions about topics in which you do not feel completely comfortable.

For example, note the usage of "that" twice, and the lack of commas, in the following text causes confusion.

There are other factors that contribute to the uncertainty that were not considered in the…

The first "that" introduces a restrictive clause that essentially describes the noun, "factors," and the meaning of the sentence. The reader needs to know "that" other factors "contribute to the uncertainty." In the case of the second "that," the idea of the factors not being considered is also critical to the understanding of the sentence. The following sentence clarifies the meaning.

There are other factors that will impact funding, which have garnered little interest in the audience.

The rewritten passage uses one "which" and one "that." The "which" introduces a nonrestrictive clause, which simply provides additional information to the reader. The "that" clause contains information that is vital to the context.

2.9 Organization

As a writer, you cannot haphazardly throw words on the page and expect readers to understand you clearly. In contrast, you should order that information on the page logically, allowing your readers to

follow your train of thoughts. Following are five patterns of organization that you can use to help clarify content.

- **Spatial**

  If you are writing to describe the parts of a machine or a plot of ground, you might want to organize your text spatially. You would describe what you see as it appears in space-left to right, top to bottom, inside to outside, or clockwise.

  For example, let's say you are a contractor describing how you will refinish a basement. Your text reads as follows:

  At the basement's north wall, I will build a window seat 7' long by 2' wide by 2' high. To the right of this seat, on the east wall, I will build a desk 4' high by 5' long by 3' wide. On the south wall, to the left of the door, I will build an entertainment unit the height of the wall including four, 4' high by 4' wide by 2' deep shelving compartments. The west wall will contain no built-ins. You can use this space to display pictures and to place furniture.

- **Chronological**

  Chronology is used to document time or the steps in an instruction. For example, an emergency medical technician (EMT) reporting services provided during an emergency call would document those activities chronologically.

  Example:

  At 1:15 p.m., we arrived at the site and assessed the patient's condition, taking vitals (pulse, respiration, etc.). At 1:17 p.m. after stabilizing the patient, we contacted the hospital and relayed the vitals. By 1:20 p.m., the patient was on an IV drip and en route to the hospital. Our vehicle arrived at the hospital at 1:35 p.m. and hospital staff took over the patient's care.

- **Importance**

  Your page of text is like real estate. Certain areas of the page are more important than others- location, location, location. If you bury key data on the bottom of a page, your reader might not see information. Decide which idea you want to emphasize and then place that information on the page accordingly. Place the more important ideas above the less important ones.

  The following agenda is incorrectly organized:

  - Miscellaneous ideas
  - Questions from the audience
  - Refreshments
  - Location, date, and time
  - Subject matter
  - Guest speakers

  A better list would be organized by importance, as follows:

  Agenda

  - Subject matter
  - Guest speakers
  - Location, date, and time
  - Refreshments
  - Questions from the audience
  - Miscellaneous ideas

- **Comparison/contrast**

  Many times in business you will need to document options and ways in which you surpass a competitor. These require that you organize your text by comparison and contrast. You compare similarities and contrast differences.

Item	Feature	Cost
The Broadmoor	4 bedrooms, 3 ½ baths 2-car garage Fully equipped kitchen	$200,000
The Aspen	4 bedrooms, 3 ½ baths Finished basement 3-car garage Fully equipped kitchen	$240,000
The Regency	4 bedrooms, 3 ½ baths Patio desk Finished basement with ½ bath Finished basement with ½ bath 3-car garage Fully equipped kitchen	$280,000

- **Problem/solution**

Every proposal and sales letter is problem/solution oriented. When you write a proposal, for instance, you are proposing a solution to an existing problem. If your proposal focuses on new facilities, your reader's current building must be flawed. If your proposal focuses on new procedure, your reader's current approach to doing business must need improvement.

Note how the following summary from a proposal is organized according to problem/solution.

Your city' 20 year old wastewater treatment plant does not meet EPA requirements for toxic waste removal or ozone depletion regulations. This endangers your community and lessens property values in its neighbourhoods.

Anderson and sons Engineering Company has a national reputation for upgrading wastewater treatment plants. Our staff of qualified engineers will work in partnership with city's planning commission to modernize your facilities and protect your community's values.

Model	**When to Use**
Chronological	Highlights the progression of events that occurred or tasks that should be completed. Often used in: Progress reports Project plans
Spatial	Describes a physical structure using an organizing principle like east-to-west or top-to-bottom. Often used in:

	User manuals Product design descriptions
Priority	Presents information in order of importance or emphasis. Often used in: Safety documentation Proposal Feasibility study
General to Specific	Familiarizes the reader with context or theory before introducing a complex idea. Often used in: White paper Proposal Presentation
Problem → Method → Solution	Discusses the methods used to address an issue and their effectiveness. Often used in: Lab reports and lab memos Technical report Experimental documentation

Activity 3: Revise the italicized vague words and phrases, specifying exact information. (Students are allowed to invent numbers.)

Vague word(s)	**specified**
I have a ***low GPA*.**	
The b-ball player was ***really tall***.	
I'll be home ***as soon as possible.***	
The team has a ***losing record*.**	
The computer has ***lots of memory***.	

Activity 4: Rewrite the following to achieve clarity:

a) When the airport lost Bill and Jean's luggage, they were sorry.
b) Mark chose a German bike because he heard that they make the best bikes.
c) We need this information as soon as possible.
d) The most recent occurrences were caused by insufficient personnel.
e) The automobile has a smaller turning radius than last year's model.
f) Several employees commended her for her expertise.

3 Objectivity

Objectivity is a defining feature of technical and academic writing. An objective style is impersonal, factual, and neutral, avoiding personal opinions, emotions, and judgments. The purpose is to present information clearly and accurately so that readers can interpret it without bias or ambiguity. Objectivity establishes credibility in your writing. Objective writing is writing that presents the facts and does not

pass judgments or give opinions. Usually to achieve an objective and impersonal style, the passive voice and the third person point of view is adopted in scientific writing. However, there are places where the passive and the third person point of view will be unnecessary.

In technical writing, objectivity:

- Enhances credibility and reliability
- Reduces multiple interpretations
- Focuses on facts, evidence, and results, not personal feelings

Unlike informal or narrative writing, technical writing avoids:

- Personal pronouns (I, we, my)
- Emotional or judgmental language
- Subjective opinions without evidence

3.1 Focus on Ideas, Not the Writer

Instead of highlighting personal beliefs or feelings, technical writing emphasizes data, findings, and processes.

I believe the algorithm is efficient. (Subjective)

The algorithm demonstrates improved efficiency based on reduced execution time.(Objective)

- *I think the system works very well.* (Subjective)
- *The system processes 1,000 requests per second without performance degradation.* .(Objective)

3.2 Avoid Emotional and Evaluative Language

Words based on emotions or personal judgment should be avoided. Replace them with **discipline-specific evaluation terms**.

Emotional / Judgmental	Objective / Technical
amazing	effective
disappointing	below expected performance
badly designed	inefficiently structured
terrible results	inaccurate results

- *The software performed terribly.*
- *The software failed to meet latency benchmarks.*

3.3 Use Moderate and Cautious Language (Modality)

Objective writing often uses **modality** (may, might, appears to, suggests) to avoid absolute claims and allow room for alternative interpretations.

Strong / Emotional

This program clearly destroys system performance.

Objective / Cautious

The program may negatively affect system performance under heavy load.

- *This bug causes system failure.*
- *This bug may lead to system failure during peak usage.*

3.4 Support Claims with Authoritative Sources

Instead of relying on personal opinion, refer to credible research and experts.

Personal

In my view, cybersecurity is very important.

Academic

According to Stallings (2017), cybersecurity is a critical component of modern computing systems.

- *I feel cloud computing is more secure.*
- *Previous studies (Smith, 2021) indicate that cloud-based systems offer improved security mechanisms.*

3.5 Passive Voice and Third-Person Perspective

Objective writing often uses:

- **Passive voice** (when the action is more important than the actor)
- **Third-person perspective**
- We tested the software under different conditions. **Active (Personal)**
- The software was tested under different conditions. **Passive (Objective)**

Note: Passive voice should be used only when appropriate. Overuse can make writing unclear.

Common Errors in Objectivity

- Using "I think", "I believe", "we feel"
- Using emotional intensifiers (very, extremely, obviously)
- Making absolute claims without evidence
- Overusing passive voice where clarity is reduced

Activity 5.1: Rewrite for Objectivity

Rewrite the following sentences to make them objective.

1. I think the app is very fast and amazing.
2. We were disappointed with the database performance.

Activity 5.2: Identify Subjective Language

Underline the subjective word(s) and replace them with objective alternatives.
The system showed poor and shocking performance during testing.

Activity 5.3: Active vs Passive

Rewrite the sentence using passive voice where appropriate.
The developers fixed the security flaws last week.

Activity 5.4: Evidence-Based Writing

Rewrite the sentence by removing personal opinion and adding an academic tone.
In my opinion, online learning is effective for CS students.

Activity 5.5: Which of the following sentences is objective and which one is subjective?

1. The results of the tests were incredibly wonderful.
2. Ninety percent of the tested samples met the accepted criteria.

Activity 5.6: Rewrite the following text using an impersonal style of writing.

I want to argue that all children in Australia have the right to be educated in their mother tongue. I expect that many children in the past spent months or years in school but did not understand the lessons. I am convinced that many migrant children are failing in our education system because we do not have bilingual education programmes. If we look at the U.N. report on language and education, we can discover that children who become literate in their own language have the greatest chance of educational success. People have been discussing the latest figures on university entrance recently and you can tell that migrant children do less well than "Anglo" children at present. I suspect that this is because they have difficulty with English and I would claim that the government

has done too little to help these children. Surely the best way to achieve this in Australia is for the State governments to set up bilingual education programmes for all migrant children. I would suggest that this is the number one important issue for multicultural Australia.

4 Preciseness

In technical writing, every word must have a place in the sentence and a meaning. Use direct statements and an active voice, avoiding past tense as much as possible, except in the executive summary, where past tense is always used. Use future tense to project into the future.

4.1 CONCISENESS

Conciseness is saying what you want to say in fewest possible words without sacrificing important information. A concise message is complete without being wordy. Read the following paragraph, taken from an actual business correspondence:

"In order to facilitate an efficient meeting and fuel thought processes prior to June 25, I want to provide you with a brief overview of discussions recently carried out at the director and manager level within the process. These discussions involved personnel from Accounts Payable, Information Services, Procurement/ Materials Management, Financial Systems, and Property Accounting, centering on a proposed framework for managing process improvement moving forward."

- Do you understand this letter?
- Do you remember what you read?
- Did you even finish reading it?

Successful technical writing should help the reader understand the text, not present challenges to understanding. The above paragraph is not successful writing. It fails to communicate clearly because it is too long-winded. In this case, conciseness actually would aid clarity.

Good technical writing is concise. It is a tool for the readers to use to accomplish whatever job they are doing. In contrast to traditional essays, effective technical writing uses short words and short sentences. Conciseness can be achieved at two levels:

- Limit paragraph length
- Limit word and sentence length

Conciseness can be achieved by following the given guidelines:

Replace Abstract Nouns with Verbs

Concise writing depends more on verbs than it does on noun. Sentences that contain abstract nouns, especially ones with more than two syllables, can be shortened by focusing on strong verbs instead. By converting abstract nouns to action verbs, you can eliminate wordiness, as the following sentences illustrate:

Wordy: The acquisition of the property was accomplished through long and hard negotiations.
Concise: The property was acquired through long and hard negotiation.
Wordy: Confirmation of the contract occurred yesterday.
Concise: The contract was confirmed yesterday.
Wordy: Replacement of the transmission was achieved only three hours before the race.
Concise: The transmission was replaced only three hours before the race.

Conciseness achieved through short words

Use one and two syllable words. Of course, some multisyllabic words can not be changed. We can not replace engineer, telecommunications, or Internet. Other words, however, can be avoided. Look at these, for example.

Long Words	Short Words
cognizant	know
Endeavor	Try

Domicile	Home
morbidity	Death
terminate	End

Conciseness achieved through short sentences

You can shorten a sentence by avoiding:

- Redundancy
- prepositional phrases
- passive voice
- shun words
- camouflaged words
- expletive pattern

Here is an unsuccessful example of technical writing:
"In order to successfully accomplish their job functions, the team has been needing more work space for some time now."
An improved sentence would read, "The team needs more work space to do its jobs."
The first sentence contains 20 words and 28 syllables; the second sentence contains ten words and ten syllables

Avoiding redundancy

Why say, "The used car will cost the sum of $1,000.00"? It is more concise to say, "The used car will cost $1,000.00." In this instance, "the sum of" is redundant. The following examples replace redundancy with concise revisions:

Wordy Sentence	**Less Wordy Sentence**
We collaborated **together** on the projects.	We collaborated on the project.
This is a **brand new** innovation.	This is an innovation.
The **other** alternative is to eat soup.	The alternative is to eat soup.

Avoiding prepositional phrases

Prepositional phrases create wordy sentences. Consider the following examples (note that the prepositional phrase is in bold type):

Wordy Sentence	**Concise Sentence**
I will see you **in the near future**.	I will see you soon.
I am **in receipt of** your e-mail message requesting an increase **in pay**.	I received your e-mail message requesting a pay raise.
He drove **at a rapid rate**.	He drove rapidly.

Avoiding passive voice

Passive voice constructions are weak for at least two reasons. They are wordy, and they replace strong verbs with weak verbs. Example:

"The window was broken by the boys."
versus
"The boys broke the window."

The first sentence contains seven words and the weak verb was. In contrast, the second sentence contains five words and the strong verb broke. The emphasis is placed on the individuals (boys) rather than on an inanimate object (window).

Other examples follow:

Passive Voice	**Active Voice**
It is my decision to run for office.	I decided to run for office.
There are sixteen people who tried out f basketball team.	Sixteen people tried out for the basketball tea
The computer was purchased by Tom.	Tom purchased the computer

Shun words

One way to write more concisely is to avoid shun words- words ending in –tion or –sion.

Shun words	**Concise versions**
Came to the conclusion	Concluded (or decided)
With the exception of	Except for
Make revisions	Revise
Consider implementation	Implement

Camouflaged words

Camouflaged words are similar to shun words. In both instances, a key word is buried in the middle of surrounding words (usually helper verbs, or unneeded prepositions).

Camouflaged words	Concise versions
Make an amendment to	Amend
Make an adjustment of	Adjust
Have a meeting	Meet
Thanking you in advance	Thank you
For the purpose of discussing	discuss

Expletive pattern

Another way to write concisely is to avoid the following expletives:

- There is, are, was, were, will be
- It is, was

Example: There are three people who will work for Acme.
Revised: Three people will work for Acme.

Avoid saying the same thing twice and repeating the same word in a sentence. When a sentence contains the same word twice, try rewriting the sentence. Reword negative language to the positive.

4.2 Negatives

In technical writing, it is preferred to use the positive form of declarations, directions, and instructions rather than the negative. For example, instead of writing “do not include” it is better to write “exclude.” Similarly, instead of writing “do not permit” use “forbid” and rather than “do not allow” write “disallow.” The positive statements are more direct and promote the use of more precise language. Similarly, in writing requirements specifications, you should use the positive form, rather than the negative form in structuring the requirements. That is, the requirement should be written using “shall” statements rather than “shall not” statements.

While it is desirable to avoid "shall not" requirements altogether, there are sometimes exceptions. Consider the following example:

The system shall permit access only to authorized users.

The requirement can be rewritten equivalently as**:**

The system shall not permit access to unauthorized users.

In this case, the first form is easier to understand because it does not involve a double negative.

4.3 Simple Terms

Impress the audience with analysis, not vocabulary. Replace complex words with simple language if it conveys the same meaning. This prevents the audience from interpreting the text, allowing the author to maintain control by forcing the reader to understand the intended meaning. Replacing the word "utilize" with "use" or "altercation" with "dispute" simplifies the text.

4.4 Action Verbs

Develop precise and interesting text. Replace verb-preposition combinations with high quality action verbs (go with → accompany, find out → discover, start out → begin). A list of action verbs is provided in Appendix.

5 Economy

Precise wording avoids ambiguity and ensures the correct information is conveyed to your reader. This is obviously essential to engineering settings, where highly technical information is being communicated.

Precise writing will generally meet the following criteria:

4.5 Concreteness

Communicating concretely means being specific, definite, and vivid rather than vague and general. Often it means using denotative (direct, explicit, often dictionary based) rather than connotative words (ideas or notions suggested by or associated with a word or phrase).

a. Use specific facts and figures

It is desirable to be precise and concrete in both written and oral communication.

Vague, general, indefinite	**Concrete, Precise**
The program runs faster now.	After optimization, the program's execution decreased from 3.2 seconds to 1.8 seconds.
Many students performed well in the coding test.	18 out of 25 students successfully solved all coding tasks in the lab assessment.
The website had high traffic.	The website received 12,500 user visits in one week, compared to 7,300 visits the previous week.

b. Choose vivid, image building words

Business and scientific writing uses less figurative language than does the world of fiction.

Bland image	**More vivid images**
The program is large.	The program contains 12,000 lines of code across 8 modules.
The system responded slowly.	The system responded in 5.4 seconds, exceeding the acceptable response time of 2 seconds.

Provide certainty by eliminating auxiliaries such as would, should, could, may, and might. Avoid ambiguous words and phrases by selecting a clearer alternative. Replace wordy text (despite the fact that) with a concise alternative (because). Additional examples of concise alternatives are provided in Appendix.

a. **Be direct and to the point.**

Example:

Due to uncertainties in the weather, it is difficult to predict when the first flight will be. However, the preference is for tomorrow. *(Indirect)*

If the weather permits, the first flight will be tomorrow. *(Direct)*

So, Avoid Ambiguous and Wordy Expressions and replace unclear or lengthy phrases with direct alternatives.

Wordy / Ambiguous	**Concise / Clear**
Despite the fact that the test failed…	Because the test failed…
In the event that the system crashes…	If the system crashes…
A large number of errors were found.	Several errors were found.
At this point in time, the program runs.	Currently, the program runs.

b. **Avoid weak sentence beginnings:** Unnecessary beginning phrases detract the reader's attention.
Example: It was the resilience of the material that prevented it from shattering. *(Weak)*
The resilience of the material prevented it from shattering. *(Strong)*

c. **Break longer sentences.**

d. **Do not misuse the passive**

e. **Repeat key nouns and verbs whenever necessary.** Do not change nomenclature.

Example: The work surface of the *scaffold* was usable, even though the wood needed to be repaired……Therefore, salvaging the *scaffold* was feasible.

Activity 6: Change the following long words to shorter words:

Long Word	**Short Word**
Utilize	
Anticipate	
Cooperate	
Indicate	
Initially	
Presently	
Prohibit	
Inconvenience	

Activity 7: Change the following long phrases to one word.

Long Phrase	**One Word**
In the event that	
At this point in time	
With regard to	
In the first place	
Is of the opinion that	
Due to the fact that	
Make revisions	
Take into consideration	

With the exception of	
Make an adjustment of	

Activity 8: Revise the following long sentences, making them shorter.

1. I will be calling you on May 31 to see if you have any questions at that time.
2. If I can be of any assistance to you in the evaluation of this proposal, please feel free to give me a call.
3. The company is in the process of trying to cut the cost of expenditures relating to the waste of unused office supplies.
4. I am of the opinion that Acme employees have too much work to do.
5. In the month of July, my family will make a visit to the state of Arkansas.
6. It is the company's plan to take action to avoid problems with hazardous waste.
7. On two different occasions, the manager of personnel met with at least several different employees to ascertain whether or not they were in agreement with the company's policies regarding overtime.

Activity 9: Make the following statements more concrete:

1. Those reports are quite a bit behind the schedule
2. The software in that department needs updating.
3. A number of departments are frequently late in submitting results.
4. The project should be attended to properly.
5. The camera has a system which gives good pictures.
6. The database query is more efficient.
7. System errors were reduced.
8. The database file is big.
9. The server crashed often.
10. The algorithm is complex.

Activity 10: Which of the following are general and which are concrete?

1. Excessive heat
2. Four inches of rain in 48 hours
3. 120 degrees Fahrenheit
4. Select the appropriate key
5. Click Alt-B

Activity 11:

1. Using spatial organization, write a paragraph describing your classroom or any room in your house.
2. Organizing your text chronologically, write a report documenting your drive to university, or your activities at a sporting event.
3. **Revise the following sentences by writing them in active voice:**
   a) The information was demonstrated and explained in great detail by the training supervisor.
   b) The reassignment of this activity was the result of changes requested by manufacturing.
   c) Misapplication of the dry film lubricant has been the primary cause of defectiveness.
4. **Write the following sentences concisely:**
   a) In regard to the progress reports, they should be absolutely complete by the fifteenth of each month.

b) I am in receipt of your memo requesting an increase in pay and am of the opinion that it is not merited at this time due to the fact that you have worked here for only one month.

5. Apply SCOPE to correct the following:

a) If we can't solve this problem soon, we will lose a large percentage of our business. **(clarity, objectivity, and precision)**

b) This application will help you in learning about new tools. **(clarity)**

c) The volume of information has been rapidly increasing in the past few decades. While computer technology has played a significant role in encouraging the information growth, the latter has also had a great impact on the evolution of computer technology in processing data throughout the years. Historically, many different kinds of databases have been developed to handle information, including the early hierarchical and network models, the relational model, as well as the latest object-oriented and deductive databases. However, no matter how much these databases have improved, they still have their deficiencies. Much information is in textual format. This unstructured style of data, in contrast to the old structured record format data, cannot be managed properly by the traditional database models. Furthermore, since so much information is available, storage and indexing are not the only problems. We need to ensure that relevant information can be obtained upon querying the database. **(Economy)**

d) A user can be disconnected when he makes a mistake. **(Write two sentences using different methods to create a gender friendly sentence)**

e) Hughes describes an array of algorithms for list processing. **(Simplicity)**