

PERFORMANCE OUTCOMES FOR UNIVERSITY OF WASHINGTON ENGINEERING WRITING

These "performance" or "learning" outcomes were developed Autumn quarter 1999 in a series of workshops attended by engineering faculty, TC faculty, engineering students, and engineers from industry. The principles and qualities listed below represent what this group deemed important for engineering students to learn about engineering writing. These outcomes will be assessed on a regular basis by evaluating random samples of engineering student writing from the various engineering departments. Accreditation of the UW's engineering programs depends partly on student performance on these outcomes.

Underlying Principles in Writing for Engineering

- A AUDIENCE** guides decisions about what to include or not to include in an engineering document, about which writing style is most effective, and about which types of engineering documents are the most appropriate.
- B PURPOSE** serves the same roles as audience; in addition, it provides the motivation/context for the document—a sense of the "big picture" and the document's place in it.
- C USABILITY** is a key feature of engineering writing. Writing should be clear, consistent, and thorough enough so that others can extract and use information and/or methods.
- D** Engineers write many different **DOCUMENT TYPES** for different audiences and purposes.
- E** Engineering writing is produced as a result of an individual or collaborative **PROCESS**. This process is creative and is similar in nature to the design process. The writing process may be unique to each individual, group, or purpose, but it always includes two steps: writers' assessment of their own thinking at one or more points in the process and an editing/proofreading step.
- F** Technical writing is part of every engineer's **CAREER** and is likely to play a major role in the quality of one's contribution to the field.
- G** As writers improve their technical writing skills, they become more **CONFIDENT** writers and thinkers in engineering.

Qualities of Good Writing in Engineering

1. The **CONTENT** of the document, including text and other elements, is effective.

The content:

- Clearly states the purpose, providing an explicit justification for the document.
- Explicitly defines the scope for the reader.
- Is factually correct.
- Supports the purpose thoroughly and concisely.
- Substantiates claims and, when appropriate, addresses alternative claims.
- Shows that the writer understands the topic under discussion.
- Uses language to connect the pieces of the argument or document.
- Uses non-textual elements (graphs, charts, equations) that are necessary for clarity, are complete, and are referred to and explained appropriately in the text.

2. The document is well-ORGANIZED for its intended audience and purpose.

The organization:

- Exhibits a logical progression and structures the content to represent that logical progression.
- Uses headings and subheadings, when appropriate, to make the document's organization apparent to the reader.

3. The STYLE and TONE are appropriate for the intended audience and purpose.

The style (word choice, sentence structure, voice):

- Holds the reader's interest.
- Includes a variety of sentence structures.
- Shows appropriate use of active and passive voice.
- Through vocabulary, demonstrates an understanding of the content, concepts, and methods in the discipline.

The tone (the writers' attitude toward the reader, the topic, and themselves):

- Takes the reader's knowledge into consideration.
- Matches the purpose in the level of formality.
- Represents a voice that is authentic and credible, so the reader believes that the writer understands the topic.

4. The document shows knowledge of writing FUNDAMENTALS.

The writing:

- Conforms to conventions or requirements of the document type.
- Uses correct punctuation, grammar, usage, and spelling.
- Uses proper citation form.

5. The PRESENTATION is appropriate for the intended audience and purpose.

The presentation:

- Is designed to help the reader navigate through content.
- Provides clear labels for tables, figures, and equations and uses sufficient space around these non-textual elements.

6. The writing demonstrates an understanding of the ETHICS governing writing.

The writing:

- Includes citations for other's ideas, including any information and non-textual material from sources outside the writer.
- Does not use data selectively to manipulate the reader.
- Acknowledges ideas or data that challenge the writer's conclusions.