Technical Writing

- **Recommended reading**
  Parts One and Two of Book: Technical Communication.

- **Introduction**
  Writing a capstone project report is one type of technical writing. Technical writing skills are very important in almost every profession. As a professional, you may have to write documents for an organization and may have to establish your professional reputation by the documents you created. A good project report is based on good research and analysis, complete and self-contained, easy to read, clear, precise and specific, has no redundancy, and follows the conventions of usage, grammar, spelling, and form.

- **Good research and analysis.**
  In a project report, the claims of the authors must be based on verifiable evidence.

- **Complete and self-contained report**
  A report should present all and only the information the readers need. The report should contain all necessary information for the readers to understand the contents of the report. It is critical to decide who will be the readers of your report. You need to know what the readers have known and what they expect to know from your report. For a capstone project report in this course, you may assume that the readers are the people who are interested in learning new technologies and theories in an information technology (IT) field. You may assume that the readers have fundamental knowledge on IT obtained from the first two years study at a college/university.

- **Readability.**
  A project report should have an appropriate reading level, not too difficult nor too easy, for the targeted readers. For example, if the targeted readers of your report are those who have fundamental knowledge on IT obtained from the first two years study at a college/university, then a conference/journal paper with a reading level more difficult than a text book for an upper division course may be too difficult while a tutorial note for the people with little IT knowledge may be too easy.

  A report should be well organized. The contents of the report should be arranged into appropriate chapters and sections. Each chapter/section has a central topic and the topics together present logically and clearly the main claims of the report. It is important to make the report look well organized. Headings (titles); forecasting, transition, and summary statements; and topic sentences are main cues to make a report look organized.

  - The report should have a clear structure. The logic behind the structure and in arguments/explanations should be clear and easy to follow. The technical terms should be well defined.
- A heading is used to forecast the topic of the following chapter/section. Headings tell readers the locations of topics and indicate the topical structures, which topics are parallel and which are subordinate, to make the organization of the report visible.

- A forecasting statement helps readers to follow the contents. For example, a statement "the implementation consists of three major parts" tells readers that they are to read about the implementation parts and there are three of them. Forecasting statements are well used to introduce the subheadings (subtitles) and preview the structures of a long document.

- A transition statement bridges one part or topics with another, telling readers one part is finished and another is about to begin.

- A summary statement is used to indicate the end of a section, chapter, or document and remind the readers the main topics.

- A topic sentence is used to state the main point of an argument or explanation. The main point is a generalization which is further explained.

A report should have a good layout and typography.
The text in a report should have good cohesion which is the linking of clauses and sentences to make the text. Using repeated nouns, pronouns and transition words appropriately are important to make a text cohesive. Graphics should be used appropriately.

- **Clarity.**

A clear report here means that the readers will understand the report in a way that the author intended. A clear report may not be easy to read, while a readable report may not be clear. Clarity is very important for technical report. A report lack of clarity may mislead readers and have serious consequences. Parts of a report can be clear, unclear, misleading, and ambiguous.

- A text is clear if competent readers receive the same meaning as that the authors intended to deliver by the text.

- A text is unclear if competent readers do not know the meaning of the text.

- A text is misleading if competent readers receive a meaning different from that the authors intended to deliver by the text.

- A text is ambiguous if it has multiple interpretations including the one the authors intended to deliver and other different ones.

Common sources of lack of clarity include inappropriate placement of modifiers and unclear pronoun reference. The position of modifiers is important in English because it decides what is modified. If a modifier refers to a wrong word in a sentence then the sentence may be misleading. If a modifier can refer to more than one word in a sentence then the sentence may be ambiguous. When a pronoun is used to represent an object in previous sentences, there should be an unique object to be referred, otherwise the text may be ambiguous (more than one object can be referred) or vague (no object can be referred).
• **Precision and Specificity**
  A sentence or paragraph is precise if the meaning it delivers is exact rather than vague. The statements in a project report should be precise not vague. Generalizations and claims in a report should be supported by precise and specific elements.

• **Conciseness**
  Conciseness is very important in many technical writings with space constraints, for example, there is usually a page limit for a conference paper. For the capstone project report, there is no page limit. Nevertheless, if two texts deliver the same information in a same level of readability and clarity, the more concise text is much more appreciated than the other one. My opinion here is that readability and clarity may have higher priority than conciseness for the capstone project report. However, efforts should be made to keep your report concise without losing readability and clarity. So eliminating redundancy may be a main direction to make your report concise.

• **Conventions of usage, grammar, spelling, and form**
  A report does not follow the conventions of usage, grammar, spelling, and form may suggest the author is either ignorant or sloppy. This may damage the professional reputation of the author.

• **Originality**
  Finally, the contents and writing of the report should be the original work of the author. **Plagiarism** is not allowed.