

Engineering Communication -- Tips to Remember for Senior Capstone Design:

1. Frontload your documents so that paragraphs can be easily skimmed, headings and subheadings are specific about material covered in the section, opening paragraphs map out the section, and executive summaries or abstracts provide a strong overview of the material. Don't assume your professor doesn't need an executive summary just because he or she didn't ask for one: assume you need a short summary emphasizing results, conclusions, and recommendations.
2. Before, during, and after drafting, use outlining to ensure you are on track. Outline the key ideas within discrete sections to ensure that you have the most logical progression of ideas within those sections.
3. The ability to summarize is a valued skill in senior design. Writers should practice effectively summarizing a process, an idea, an article, the results of a brainstorming session, etc. – you may be called upon to efficiently summarize key decision points in a design review.
4. When using figures, you should introduce the figure before it appears, place it in the text as close as possible to where it is first introduced, create a useful figure title and caption, and provide callouts on the graphic indicating key parts. If you are using a graphic to show one tiny part of an overall design, provide meaningful context so audiences or readers can easily understand where that tiny part fits into the full design. (Sometimes this requires two figures side by side.)
5. Avoid overuse of bulleted lists, but recognize when a short bulleted list will be more efficient and effective than a paragraph. An occasional bulleted list, if it is introduced and concluded effectively, can emphasize key points and help a busy reader.
6. The ability to retrieve and analyze credible sources will be critical in senior design, and many faculty don't have time to teach these skills. They expect students to come in knowing how to conduct secondary research and patent searches to understand what existing designs are already available to solve a design problem.
7. Students need to understand what faculty expect from them when they ask for student biographies along with design proposals: these are not Facebook profiles; they are supposed to emphasize engineering credentials.
8. Students should understand that their presentations in senior design may be interrupted with a question from the faculty. (Be comfortable with interruption and expect it, but don't allow that question to derail your presentation. Show that you can think on your feet, answer efficiently, and pick up the presentation where you left off.)
9. Students need to know that some audiences, senior design faculty included, **really** are distracted by filler words in presentations: use your formal speaking opportunities to practice direct, efficient speech.
10. Student teams in senior design often will break work up and have one person managing the writing. But many teams do not carefully choose their best person to be the writing (or presenting) leader; often they arbitrarily assign this task. Have a discussion about your writing histories to determine who really has the skills to take on the task. Who on the team has been consistently successful writing for several different courses? Who has recently had a writing intensive course?