Preparing Technical Reports and Presentations
Introduction

This presentation focuses on:

- Writing technical reports.
- The contents of written technical reports.
- Preparing and presenting oral technical reports.
- The contents of oral reports.
Type of Engineering Documentation

Engineering Documentation have many purposes and formats, including:

- Reports on the design or development of a product or service or publish/report experimental results.

- Progress Reports - report on the current status of project, team activities or the final accomplishments of a team.
Type of Engineering Documentation (cont.)

- Technical Specifications - typically consist of description of the features, material and uses of new product.

- Technical Evaluation Reports - present information in a practical and logical way to approve that something is possible.

- Technical Manual and Instructions - provide information to use, maintain and possibly repair certain equipment or programs.
Written Reports

- Readers can proceed at their own pace and thus control the time they dedicate to a report, as well as which parts they read and the order in which they read them.

- The reader can scan, reread, refer from text to illustrations and back, or stop to consult another text or dictionary.

- The length of the written report or paper may vary substantially.
Oral presentations

- Listeners must keep up with the speaker and have more control over the time dedicated to the presentation or the order in which the topics are considered.

- The listener depends on the speaker making everything clear and in a logical sequence.

- The presentation must be carefully planned to not exceed the allocated time for the presentation.
Written Reports
Written Technical Reports

- Report-Writing Process
- Report Content and Structure
- Report Writing Mechanics
- Report Formatting
Report-Writing Process

- **Planning:** purpose, audience, desired effect, background and purpose for report, make report interesting, clear and proper intensity.

- A good writing process requires drafts, feedback, and revisions.

- **Writing:** Start writing the report by moving from an outline to having all major parts drafted.

- **Rewriting and editing:** The hard part of writing that is often ignored. When first written the report is only a draft. The report is only finished after it is edited and rewritten.
Organizing Parts of Technical Report

Paragraph Organization

Effective paragraphs possess:

- **Unity**: singleness of purpose
- **Coherence**: one point of view, one attitude, one tense
- **Focus**: a strong topic sentence and supporting evidence
- **Flow**: transitions from one sentence to the next, from familiar to new information
Organizing Parts of Technical Report (cont.)

Sentence Organization

Effective sentences:

- Identify their subject
- Use transitional words to connect past and present information.
- Use strong verbs to describe the subject in action.
- Flow from the familiar to the new
- Keep your average sentence between 10 to 20 words. Avoid wordy phrases and sentences
Organizing Parts of Technical Report (cont.)

Word Choice

- Use simple words rather than complex ones
- Don’t overuse technical jargon
- Avoid acronyms and abbreviations
Content and Structure of Written Technical Reports

- Title page (Front matter)
  - title, date, author(s), department, the date of submission etc.
- Table of Contents
  - lists all sections, subsections and appendices with appropriate page references
- Executive Summary or Abstract
  - provides brief summary of the report; includes the important points from each element of the document
- Introduction
  - introduces purpose, context, background and scope of report; provides the motivation
Content and Structure of Written Technical Reports (cont.)

- **Main Body**
  - documents the core technical work
- **Results and Discussion**
  - present and interpret data
- **Conclusions and Recommendations**
  - summary and restatement of main issues; critical part of technical report
- **References (Back matter)**
  - consist only of material cited in the text
- **Appendix (Back matter)**
  - supplementary information, diagrams, data tables
Report Formatting

- Report layout, text spacing, and page numbering
- Section headings and table of contents
- Figures, tables, and equations
Visually Support Your Main Points

Visuals include:

- Pictures
- Drawings
- Sketches
- Diagrams
- Tables
- Graphs
- Charts
- Equations
Design Effectively Visuals

- For drawings or pictures, use callouts to label parts of the figure.
- Show numerical values with charts and graphs.
- Clearly indicate the units of measure.
Design Effectively Visuals (cont.)

- Diagrams and tables should be numbered according to their section and placed as close as possible to the text which refers to them.

- Emphasize the interpretation and not the numbers.

- Remember your purpose—show a comparison, not the details few will remember.

- Avoid too much information!
Criteria for Success:
Overview

- You facilitate decision-making, emphasize conclusions, use supporting data.
- A broad audience can read and understand your report.
- You clarify the problem, emphasize merits of the study, and show practical results.
Oral Technical Presentations
Oral Technical Presentations provide a framework for:

- Organizing knowledge for the benefit of the audience.
- Introduce ideas that the audience should care about.
- Create a road map to the development of that idea.
- Clarify/support what they should remember.
- Conclude with a take away message.
- Motivating audiences to ask questions.
Structure of Oral Presentations

- Introduction - capture the audience within the first couple of minutes. Introduce the message to be communicated.

- Main Body - organize by importance. Each topic is introduced by a single phrase that summarizes it.

- Conclusion – a concise summary of what was said. Separate and distinct part of presentation and not a rewording.
Responsibility of Writer/Speaker

- Clarity of meaning – The meaning must be clear in meaning as possible. The language should be simple, precise, and focused.

- Proper intensity of transmission – The intensity of the message must be high enough to insure that it is noticed and heard, but not distract from the message.

- Stimulate the interest of the audience
Delivery Essentials

- Speak clearly.
- Don’t rush; maintain the pace of a typical conversation.
- Build in pauses…..give your audience a chance to absorb what you are saying.
- Don’t read slides word by word to the audience.
Delivery Essentials (cont.)

- Explain or define new terms.
- Avoid jargon and long sentences.
- Before introducing new material, stop to remind your audience what they’ve learned so far.
- Make as much eye contact as you can.
- Show enthusiasm for your project.
Steps to Effective Presentations

- Plan
- Organize
- Support with visual aids
- Practice
- Remain credible
- Handle questions
How Do I Plan a Oral Presentation?

- Think about audience.
- Define your purpose.
- Outline your main points and support.
Define Your Audience

- Who they are?
- What they know?
- What you want them to know?
- What you want them to do with the information?
Practice

- Practice in front of a live audience.
- Did they understand your main points and support—could they outline the speech?
- Practice emphasis—articulate important words, slow down for difficult information.
- Do you speak loudly enough?
- Maintain eye contact, stand up straight.
- Make clear transitions so that people see the big picture.
The Keys to Credibility

- Always have a clear purpose, effective organization, and useful information.
- Have relevant, credible, and recent information.
- Respect your audience with clear, precise, and appropriate word choice.
The Keys to Credibility (2)

- Beware of too much informality and inappropriate humor.
- Facial expressions and eye contact are important factors in gaining your audience’s trust and confidence.
- Your clear, fluent, and adequately projected voice contributes to your credibility.
Handling Questions

- Anticipate what audiences may ask.
- Repeat questions for the benefit of others.
- Answer directly, then explain any reservations.
- Respond to a variety of people.
Handling Questions (cont.)

- If you don’t know the answer, admit it.
- Give positive, pro-active answers even if the question sounds hostile.
- End at an appropriate time.
- Thank the audience.
Preparing and Presenting Oral Technical Presentations

- Handouts
- Projected Slides – power Point presentation or transparencies of computer graphics
- Hand writing on blackboards, whiteboards, or flipcharts
- Devices or models of devices
- Demonstrations or simulations of operating devices
- Multimedia presentations