Students may find useful exercises, solutions and summary sheets in this workbook to accompany the tutorial podcasts.
Worksheets for ‘Basic Concepts in Technical Communications’

Introduction to the Tutorial Lesson

In engineering class, you are often asked to develop reports, such as progress reports, design reports, scientific reports and memoranda. Before developing the skills necessary to write these types of reports, you may find it useful to learn some of the fundamental concepts by identifying the basic differences between a general article and a technical report. In this particular lesson, you will be introduced to some of the most basic concepts associated with scientific and technical reports.

For this lesson, we ask you to carefully read and identify the differences between two documents, a popular science article titled ‘The Solar Sailor’ and a technical report with the header ‘Enviro Consultants Group.’ You should play the podcast, complete your notes on the worksheet and then return to the podcast to compare your findings with the possible answers. This lesson should take approximately 30 minutes to complete.
Basic Concepts Exercise:

Read both the popular science article and the technical document. Identify the differences between the two types of documents.

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<th>Popular writing</th>
<th>Technical writing</th>
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<td><strong>Think about the type of readers</strong> that the writer expected to have</td>
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<td>What background knowledge do you think that the reader has? Are there clues that help you to identify this?</td>
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<td><strong>Think about the way the content is arranged and how the writer lets the reader know what to expect</strong></td>
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<td>Does the author provide clues to the reader? What are they?</td>
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<td><strong>Describe the style of the writing</strong></td>
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<td>Can you describe the type of language that is used?</td>
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<td>How might you characterize the tone, or the ‘sound’ of the writing?</td>
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<td><strong>Think about the writer’s apparent reason for writing</strong></td>
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<td>Is he or she trying to get you to do something or believe something?</td>
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<td>How do you know if the content is credible?</td>
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To: Dr. Karina James, Manager  
Mr. Armaan Kula, Project Engineer  
From: Mik Case, Project Engineer  
Subject: Results of initial investigation into Horry County beach erosion  
Date: April 5, 2009

Foreword

Beaches along the shoreline of Horry County, South Carolina, and in particular those of the City of Myrtle Beach, suffer from continual erosion, which has economic costs as a result of declining property values and loss of tourist revenue. County and city officials have retained our firm to discover the causes and determine the speed of the erosion and, subsequently, to propose methods to prevent or slow this erosion. You asked me to conduct a preliminary investigation into the causes of the erosion. The purpose of this memo is to explain my initial findings and to recommend further studies.

Summary

I spent three days in South Carolina meeting with county and city officials and making observations of the shoreline. I followed this with research into weather data and geologic reports.

The beaches in question are eroding at a rate of about 2% per year largely as a result of their geologic make-up, their position and the weather (in particular heavy rainfall and the impact of hurricanes). The situation is exacerbated by the actions of private property owners who build structures called “groins” to protect their beaches at the expense of their neighbors. Certain storm water run-off projects, built by the City of Myrtle beach, however, do seem to coincidentally help preserve its beaches.

Introduction

The beaches along the shoreline of Horry County, South Carolina suffer erosion, and those of the City of Myrtle Beach may be in danger of disappearing completely. Property owners and the governments of Horry County and Myrtle Beach are concerned at the economic costs resulting from loss of property values and tourist revenue as the shoreline erodes.

You asked me to perform a preliminary examination of Myrtle Beach’s situation in preparation for a detailed study into ways to stem the erosion of its beaches. I visited South Carolina and met with Horry County and Myrtle Beach officials to discuss the situation. I then observed the Horry County shoreline to see what actions have been taken to fight beach erosion. The team, as a whole, reviewed relevant geologic, climatic and historical data from the United States Government and other relevant agencies in preparation of this preliminary memorandum. Some background and our initial findings follow.

Geology of Horry County Beaches

The shaping and erosion of the South Carolina shoreline is the result of its geologic history, its position and its climate. Beaches along the shoreline of South Carolina are formed from
barrier islands that have drifted onto the mainland. The coastline is divided into two zones, standard and inlet. The inlet zones are regions close to tidal inlets; this proximity plays a major role in the erosion patterns of beaches. Such zones are usually un-stabilized: there are no solid structures to anchor the inlet channel, and therefore the surrounding shoreline is dynamic and subject to erosion. In fact, some South Carolina beaches have eroded so much that they are in danger of disappearing: the South Carolina shoreline is eroding at the rate of roughly 2% per year, and it is possible that the beaches of the city of Myrtle Beach may erode completely.

**Climate of Horry County**

Both rainfall and hurricanes contribute significantly to beach erosion. Statistics show that the wettest months are July and August, and the driest are October and April. The peak hurricane season for the coast is from June 1st through November 30th. These hurricanes often move inland, creating strong winds, heavy rains, high waves, flooding and sometimes tornadoes. We can expect the greatest erosion to occur when hurricanes strike, particularly when this happens during the wet months from June through August.

**Current Solutions to Horry County Beach Erosion**

The public is constantly trying to find solutions to help prevent the continual erosion of the shoreline. Currently, the City of Myrtle Beach is working to install ocean outfalls to move storm water out beyond the swim zone. These structures, which are mean to move polluted water resulting from storm overflow out beyond the swim zones of beaches, also help to stabilize beaches. Approximately 30% of the developed shoreline is already stabilized by shoreline structures.

However, other attempts to improve the shoreline create more problems for the coast. Private owners often install structures called groins, on their beachfront property. These are walls that jut out perpendicularly from the beach out into the sea. Wave action deposits sand on the updrift side of the groin, but sand is washed away from the other side, causing problems for other property owners down the coast. Thus hundreds of groins would have to be built to protect the shoreline. In addition, the building of groins may be a solution acceptable to only some of the public: many residents and tourists consider these structures to be a detriment to the natural environment and landscape.

**Next Steps**

The next step in our design process is to collect more information about other types of structures that would help to eliminate the shoreline degradation. In particular, we are researching structures that would cause minimal environmental impacts and also ones that have already been successfully implemented and monitored at other sites.

**Works Cited:**

1. Myrtle Beach Chamber of Commerce  

The Solar Sailor:
A strange new boat sails on gusts of wind, rays of light, and the passion of an inventor from Down Under.

Skirting across a man-made lake 100 kilometers southwest of Sydney, the twin-hulled Massie B looked like an exotic, overgrown waterbug. The resemblance grew as her crew manipulated the 8-meter boat's "wings" -- lengthy, expansive, lightweight modules covered with waterproofed solar cells. Each cell generated electricity just as a solar cell in an everyday pocket calculator does; by adjusting the wings' angle to the sun, the crew gathered more energy for their craft's electric motor.

But these wings weren't just solar collectors. Raised perpendicular to the water, they caught the breeze like a sail, allowing the catamaran to use the combined power of sun and wind to win second place in Chatham's Solar Sail Race 2010. As the boat's lead widened in this race, however, the wind died down and the Massie B was forced to rely solely on its solar cells and batteries. The boat's support team was nervous -- it was the first trial under race conditions. But to spectators on the shore, the Massie B appeared to pick up the pace.

A couple of human, rather than technological, errors earned the Massie B an extra lap and cost her first place at the finish line. (The captain was penalized for tacking too close to a race buoy and banging into another boat.) But despite these glitches, the Massie B -- one of more than 60 participants in the all-solar regatta -- won the $60,000 prize for Most Innovative Vessel. David Gaul, one of the race's judges, was impressed with the boat's unusual combination of wind and solar power. "The movable wing design allows you to do two things simultaneously: take advantage of the wind, and get the absolute best alignment of the panels to the sun. Just look at her ability," he adds. "She's easily the most innovative boat. You don't see too many Massie Bs running around the world."
Worksheets for ‘Audience and Purpose’

Introduction to the Tutorial Lesson

In your engineering studies, your written reports and oral presentations all will be technical communications. They require you to approach their creation in a systematic way. Understanding two basic concepts will help you at the beginning of the creation process, and approaching them properly helps make sure your technical communications will be effective.

The first issue is to understand who your audience is – that is, what person or group of persons do you expect to read your report or listen to your presentation? The second is having a clear sense of your purpose – that is, what exactly are you trying to accomplish? If you understand your audience and purpose you’ll be able to make good decisions about the content and form of every technical document and presentation.

In this lesson we review these two concepts and explain how you can use them when planning any report or presentation. There are examples and explanations of this approach, and several exercises to help you apply these concepts. Play the podcast, stop and write down your answers when requested, and then return to the podcast to compare your findings with possible answers. This lesson should take approximately 30 minutes to complete.

Audience Exercise #1

During your first week at the university you enter a contest and win a new iPhone. After learning all its features you want to tell your friends and relatives about your new device.

Ask yourself how you would explain your iPhone to the your best friend from high school, your parents, your cousin in the Peace Corps, and your grandparents, then write your answers in the spaces provided below. In thinking about this, ask yourself the following questions:

- What information would you include?
- What vocabulary and images would work best for each person?
- How much detail should you provide?
- What approach will make your explanation successful in helping each audience understand your new iPhone?

1. Your best friend from high school, now at a different university, whose interests and background are similar to yours:

2. Your parents, who mainly use their phones to make calls:
3. Your older cousin who has been in the Peace Corps for 3 years in a remote village, without phone or Internet access, and who only gets mail once a month:

4. Your grandparents, who don’t have computers, don’t understand the Internet, and who never have heard about the iPhone:

Audience Exercise  #2

A sales agent has told you about a new technology that promises to improve the accuracy of your company’s production machinery. The new technology will cost $100,000 but it will reduce product waste and significantly improve product quality. You think this is a good investment, but you have to explain and justify the expense to your supervisor, the company’s financial vice president, the company’s marketing department, and the company president.

If you had to make four separate presentations to these four different audiences:

- How would your presentations differ?
- What information would you stress?
- What information would you leave out?
- Would you use any of the same arguments with the different audiences?

1. How will you justify the purchase to your supervisor?
2. How will you justify the purchase to the financial vice president?

3. How will you justify the purchase to the company’s marketing department?

4. How will you justify the purchase to the company president?
**Purpose Exercise**

Again consider the example you examined when you were thinking about audience:

A sales agent has told you about a new technology that promises to improve the accuracy of your company’s production machinery. The new technology will cost $100,000 but it will reduce product waste and significantly improve product quality. You think this is a good investment, but you have to explain and justify it to your supervisor, the company’s financial vice president, the marketing department and the company president.

Now, instead of thinking only about **who** your audience is, ask what would be your **purpose** in making a presentation to these four different audiences?

1. What is your purpose in presenting to your supervisor?

2. What is your purpose in presenting to the financial vice president?

3. What is your purpose in presenting to the company’s marketing department?

4. What is your purpose in presenting to the company president?
**Audience and Purpose Summary Sheet**

Audience and purpose determine the content, form, tone and style of every technical document; therefore it is important to understand them first.

**Audience**

You will have different audiences
- Primary audiences
  - Need your information
  - Make decisions based on your information
- Secondary audiences
  - Have less direct connect to your document
  - Examples include sales, marketing, legal audiences

Audiences can be experts, technicians, managers, or general readers.

Each audience will have different needs and expectations.

First understand your audiences so you can design your materials to satisfy their needs and expectations, and allow them to get the information they need from your document.

Audiences can be members of your team, partner teams, larger units within your organization, or groups outside your organization.

Different audiences have different defining characteristics that you need to identify:
- Education
- Professional experience
- Job responsibilities
- Relationship to your project
- Attitudes toward you and your subject
- Their personal characteristics, such as age, gender, nationality, culture, values and beliefs

Understanding your audience helps you make the decisions that determine how you will create your document or presentation:
- Format
- Length
- Structure
- Tone
- Style
- Vocabulary
- Content
- Difficulty
- Complexity
- Assumptions
Purpose

In technical communication you always write for a reason, and clearly knowing that reason before you begin allows you to create effective reports and presentations.

To identify the purpose of your technical communication project, ask yourself “What will the document or presentation accomplish?”

If your purpose is informative, you are giving your audience the information they need to understand a topic or make a decision. Some terms that capture what this kind of informative writing does are:

- Inform
- Describe
- Define
- Review
- Notify
- Instruct
- Advise
- Announce
- Explain
- Demonstrate

If your purpose is persuasive, you are trying to convince your audience to hold a particular opinion or take a specific action. Some terms that capture what this kind of persuasive writing does are:

- Persuade
- Convince
- Influence
- Recommend
- Change
- Advocate
- Urge
- Defend
- Justify
- Support

When you have a clear sense of your purpose, you should be able to state it in a single sentence and use it to shape the choices you will make when creating an effective report or presentation.

Some conclusions

- Even though your goal is the same, your purpose changes when communicating to different audiences.
- To communicate complex information clearly and effectively, first analyze your audience and identify your purpose.
- Understanding audience and purpose allows you to make the best decisions for effective communication.
- Being an effective communicator makes you a valuable employee.
Worksheets for Organizing Your Documents

Introduction to the Tutorial Lesson

Effective communication requires understanding and accommodating different audiences.

By organizing the materials you are communicating, you make it easy for your audiences to find and extract just the information they require.

Understanding how technical documents are structured and formatted allows you to satisfy these communication needs.

Contents of these Worksheets

The following pages include an exercise in identifying the organization of a memo, a summary of the information presented in this podcast, and additional information about the importance of formatting in creating clear and effective documents. Completing this exercise and reviewing the summaries will help you understand the general principles for organizing your documents.

Organization Exercise

The sentences in this exercise are taken from a memo about an assignment to estimate the electrical generating potential, dam height, and reservoir size for a site in Chile. All the information is in the proper order but the organization has been removed. Your task is to indicate how this memo might have been originally organized, by separating out the different paragraphs and providing headings to indicate the different sections that make up a memo (Foreword, Summary, and Discussion). Mark the section and paragraph breaks on the page, identify the different sections, and when you are finished, compare your organization with that of the original memo on the following pages.

This memo has been adopted from one presented in ________________, by Khan, Hildinger, and Hildinger, etc.................
Our company has recently acquired a new dam site, and I was asked to perform a preliminary estimate of the electrical generating potential of the site. I analyzed the site location, evaluated the constraints and completed some calculations. This report includes my findings concerning the constraints that will influence the dam height. This report also includes my recommendations for dam height and estimates of both the hydro-electrical generating potential and the resulting reservoir size. The upstream elevation and various constraints were used to determine the recommendation for the height of the dam. On the basis of a detailed evaluation of the Rio Consuelo topographic maps, I recommend a dam height of 50 meters for the new site at 45° 28' S. 72° 18'55" W. A dam of 50 meters will create a reservoir approximately 1.2 kilometers in length. With the average flow rate of 174 m³/s and an assumed efficiency of 85%, the hydro-electrical generating potential is 72.5 Megawatts. After studying several topographic maps of the Rio Consuelo area, I have determined the upstream elevation profile of the site. The elevation of the proposed dam site at 45° 28' S. 72° 18'55" W is approximately 120 meters above sea level. Roughly 4 kilometers upstream in the east-southeast direction, the Rio Torro joins the Rio Consuelo. Approximately 17 kilometers southeast of that point, on the eastern bank of the Rio Simpson, is the city of Coihaique, the capital of Region 11 of Chile. The elevation of the river at this location is 215 meters above sea level, but the elevation of the city varies from 275 meters near the river to 375 meters further east. Many fields and farms surround the river in the vicinity of the city. Because of the upstream profile of the dam site, I have determined three constraints that will influence the height of the dam. First, because the Rio Torro flows into the Rio Consuelo, there may be increased areas of inundation at the mouth, especially in the spring when the snow from the mountains melts and causes an increase in the rivers’ flow rates. Second, the slope of the land becomes very flat approximately 10 kilometers upstream from the mouth of the two rivers. This relatively flat land is where Coihaique and the surrounding farms are situated. This level land is not suitable to contain a reservoir. Third, a main highway, CH245, runs along the length of the Rio Consuelo from Coihaique to beyond the dam site to the city of Puerto Aisen. This highway is the connector between these two major cities. Also, the environmental effect of the dam and reservoir must be considered. The Rio Consuelo is known for fly fishing (1), and the reservoir will cause a change in the ecosystem for the fish and other wildlife. A higher dam will result in a larger reservoir, which will consequently increase the population of wildlife that will be forced to adapt or die. After taking into account each of the constraints, I recommend a dam height of 50 meters. The contour lines on Map 1 represent an elevation difference of 50 meters. The lowest contour line crosses the Rio Consuelo 1 kilometer upstream from the dam site. Therefore, the length of the reservoir will be approximately 1.2 kilometers. If the dam were to be any higher than 50 meters, the reservoir size would become much greater because of the leveling of the leveled slope of the land further upstream. For instance, if the dam height were to be 100 meters, the reservoir size would extend to the second contour line in Map 1. This increase in reservoir area would result in the flooding of a vast area of more than 12 kilometers (from Map1), potentially including the farms and city of Coihaique. Furthermore, as the height of the dam increases, the length of CH245 that will be flooded also increases. Building a 40m dam will require that only 1 kilometer of CH245 will need to be rebuilt at a higher elevation, as opposed to at least 12 kilometers with a 100 meter dam. Therefore, I recommend a dam height of 50 meters.
for the new site at 45° 28’ S. 72° 18’55” W. A dam of 50 meters will create a reservoir approximately 1.2 kilometers in length. With the average flow rate of 174m$^3$/s and an assume efficiency of 85%, the hydro-electrical generating potential is 72.5 Megawatts.
Organization Exercise Solution Sheet

The memo, as originally organized, reads as follows. See if the section and paragraph breaks you selected match those you see below.

Foreword

Our company has recently acquired a new dam site, and I was asked to perform a preliminary estimate of the electrical generating potential of the site. I analyzed the site location, evaluated the constraints and completed some calculations. This report includes my findings concerning the constraints that will influence the dam height. This report also includes my recommendations for dam height and estimates of both the hydro-electrical generating potential and the resulting reservoir size.

Summary

The upstream elevation and various constraints were used to determine the recommendation for the height of the dam. On the basis of a detailed evaluation of the Rio Consuelo topographic maps, I recommend a dam height of 50 meters for the new site at 45° 28' S, 72° 18'55" W. A dam of 50 meters will create a reservoir approximately 1.2 kilometers in length. With the average flow rate of $174 \text{m}^3/\text{s}$ and an assumed efficiency of 85%, the hydro-electrical generating potential is 72.5 Megawatts. . . . [The paragraph continues with further details.]

Discussion

After studying several topographic maps of the Rio Consuelo area, I have determined the upstream elevation profile of the site. The elevation of the proposed dam site at 45° 28' S, 72° 18'55" W is approximately 120 meters above sea level. Roughly 4 kilometers upstream in the east-southeast direction, the Rio Torro joins the Rio Consuelo. Approximately 17 kilometers southeast of that point, on the eastern bank of the Rio Simpson, is the city of Coihaique, the capital of Region 11 of Chile. The elevation of the river at this location is 215 meters above sea level, but the elevation of the city varies from 275 meters near the river to 375 meters further east. Many fields and farms surround the river in the vicinity of the city.

Because of the upstream profile of the dam site, I have determined three constraints that will influence the height of the dam. First, because the Rio Torro flows into the Rio Consuelo, there may be increased areas of inundation at the mouth, especially in the spring when the snow from the mountains melts and causes an increase in the rivers' flow rates. Second, the slope of the land becomes very flat approximately 10 kilometers upstream from the mouth of the two rivers. This relatively flat land is where Coihaique and the surrounding farms are situated. This level land is not suitable to contain a reservoir. Third, a main highway, CH245, runs along the length of the Rio Consuelo from Coihaique to beyond the dam site to the city of Puerto Aisen. This highway is the connector between these two major cities. Also, the environmental effect of the dam and reservoir must be considered. The Rio Consuelo is known for fly fishing (1), and the reservoir will cause a change in the ecosystem for the fish and other wildlife. A higher dam will result in a larger reservoir, which will consequently increase the population of wildlife that will be forced to adapt or die.
After taking into account each of the constraints, I recommend a dam height of 50 meters. The contour lines on Map 1 represent an elevation difference of 50 meters. The lowest contour line crosses the Rio Consuelo 1 kilometer upstream from the dam site. Therefore, the length of the reservoir will be approximately 1.2 kilometers. If the dam were to be any higher than 50 meters, the reservoir size would become much greater because of the leveling of the leveled slope of the land further upstream. For instance, if the dam height were to be 100 meters, the reservoir size would extend to the second contour line in Map 1. This increase in reservoir area would result in the flooding of a vast area of more than 12 kilometers (from Map 1), potentially including the farms and city of Coihaique. Furthermore, as the height of the dam increases, the length of CH245 that will be flooded also increases. Building a 40m dam will require that only 1 kilometer of CH245 will need to be rebuilt at a higher elevation, as opposed to at least 12 kilometers with a 100 meter dam.

Therefore, I recommend a dam height of 50 meters for the new site at 45° 28' S. 72° 18’55” W. A dam of 50 meters will create a reservoir approximately 1.2 kilometers in length. With the average flow rate of 174m³/s and an assume efficiency of 85%, the hydro-electrical generating potential is 72.5 Megawatts.
Organizing Your Documents: Summary Sheet

Effective Communication

Effective communication requires understanding and accommodating different audiences. By organizing the materials you are communicating, you make it easy for your audiences to find and extract just the information they require. Understanding how technical documents are structured and formatted allows you to satisfy these communication needs.

There is a large difference between information that is unstructured and information that is structured. Although it may be possible to make sense of unstructured information, in the world of work there is no time for this task. If your document is unorganized or poorly organized, readers may not find or understand the information they need. Furthermore, busy readers will not waste their time struggling with disorganized writing. Highly structured information, that separates different components clearly, is required by busy readers. Therefore your responsibility as a writer is to represent your ideas as clearly as possible, using templates provided by your organization, or following guidelines for creating effectively organized documents.

Organization provides meaning, but we should be aware that many different organizations of the same material are possible, and even more options are possible if only some of the material is selected.

What Readers Expect

Because technical communication deals with complex information, understanding it is not obvious or easy. Your readers may come from different technical backgrounds, have different reasons for reading your document, and may read different sections of it. And, because people in organizations are busy, they come to your document looking for specific information they need or will use to make their own decisions.

Readers want to know the purpose of your document, what information it will contain, and this will allow them to decide whether or not to read it. Once they decide you have information they need, they want to be able to find and access that information as quickly and simply as possible. You help them by using templates or guidelines that provide clear organization at all levels of the document.

Readers expect to find the information they need as quickly and easily as possible, and will look for clues about how the document is organized and the information presented in predictable locations: at the beginning of the document, the beginning of each section, and the beginning of each paragraph. These locations typically provide outlines of what is to follow. The ending of different sections is also important, and often provides summaries of what has been presented.

These structural clues allow readers to quickly scan documents to locate relevant information, focus on the most relevant parts for their needs, and provide the option of following up and rereading the rest of the document later.
Strategies that Communicate Organization

Different elements help communicate organization to the reader. Effective writing employs all these strategies:

- Provides an informative title
- Includes a statement of the document's purpose
- Provides an overview of the key components
- Summarizes the important information and conclusions
- Uses section and subsection divisions
- Writes clear topic sentences for all paragraphs
- Maintains signposts throughout the document
- Divides your information into logical units

These strategies help the reader understand how different elements are connected and make it easier for them to absorb the important concepts your documents contain.

Structure

One way to think about effective organization within documents is to think about structure, meaning how different kinds of documents contain different elements that are arranged to achieve a particular purpose. Some structural principles apply to almost all documents, since they are based on the natural expectations readers have when they come to a document. Other structural principles apply to specific kinds of documents. By applying an appropriate structure to your documents you are keeping them organized and helping your readers easily find the information they need within your document.

Three Different Sections Organize Most Documents

The basic structural principle, deriving from readers' natural expectations about how information will be presented, results in three different sections for most documents. Each serves a particular purpose, and they always follow the same order.

The first section is the overview; the second is the discussion, which contains the data that supports the main ideas being presented, and the conclusion. These sections may appear differently in different kinds of documents, but the purpose is always the same: to satisfy the reader's need to understand how your information is being presented.
The Overview Section

Let's look at some characteristics of the overview sections. Because it comes first, it orients the reader to general information about the document and sets up expectations about what is to follow. This introductory section may include key findings, conclusions, and recommendations, since some readers, like managers, may read only this section seeking a quick summary of findings. The overview is concerned with the document’s function within the organization, the purpose it serves, rather than the specific technology that may be involved.

The reader of the overview can expect to come away with answers to the following questions:

- What is the subject?
- What is the scope and what are the objectives of the study?
- What is the purpose of the document? Is there any relevant background for this study?
- And how will the document that follows be organized.

The Discussion Section

The discussion follows the overview and usually constitutes the main body of the document. It provides the supporting theory, data, and explanations for conclusions that may have been identified in the overview, and systematically explains how those conclusions were reached. Typical sections include

- an explanation of the approach and/or procedures
- Analysis showing how the conclusions and recommendations were reached, and
- data and other information supporting the analysis.
- Additional material and other documentation may be referenced to support the approaches and conclusions.

The Conclusion Section

The final section of an organized document is the conclusion. It always follows the discussion, and provides the answers to questions raised earlier in the document. These questions include

- what main ideas were presented?
- what does the data reveal?
- what remains to be done?
- and what recommendations may follow from these conclusions.

As noted before, the overview section may list the conclusions so they can be noted by a reader skimming the document for the main points, but only in the conclusion will they be fully explained.
Organizational Strategies

In presenting your information you will use different organizational strategies for different kinds of documents. Some standard organizational patterns or strategies are as follows:

- Chronological
- Spatial
- Priority/Emphasis
- Comparison and Contrast
- Cause to Effect
- Effect to Cause
- General to Specific
- More to Less Important
- Classification
- Partitioning
- Problem-Methods-Solution.

These standard organizational patterns are used, separately or in combination, to convey the relationship between ideas and present your conclusions in the most organized and convincing manner.

Communicating Organization

Whatever organizational strategy is selected, the reader still needs clearly presented information to help in navigating the document. This information is usually presented in the initial organization and introductory sections, and is reinforced by how different components of the document are divided and subdivided.

Establishing expectations for the reader, and then fulfilling those expectations in the body of the document, provides a satisfying experience for the reader and reinforces the impact of the ideas and arguments presented.

Communicating Structure

We have seen that structure is communicated to the reader in the overview section of most documents. Most documents are also subdivided into sections, and the structure of each section is typically presented in an introductory sentence of each paragraph; that sentence

- Identifies what will be included in the section, and
Topic sentences beginning each paragraph perform similar tasks at the paragraph level.

Final Organizing Guidelines

In conclusion, here are some final guidelines about making your documents as organized as possible:

- Create a clear one-sentence statement identifying your purpose and your intended audience; this will help you stay focused.
- Select the appropriate organizing structure and format and make sure the reader is aware of his organization.
- Provide previews, signposts, and other cues about your organization throughout the document.
- Use transitions that reinforce the organization.
- Begin each section with an introduction; end with a summary.
- Emphasize and repeat your important points.
- Make your conclusion integrate your entire discussion.
Organizing Your Documents: Summary About Formats

Another factor conveying organization and helping the reader efficiently navigate within a document is the document’s format.

**Format** is a set of guidelines that controls how the document looks; it concerns:

- how to display text,
- how to display graphics, and
- what a page looks like to the reader.

Within an organization you may be provided with a pre-formatted template or you may create your own.

Here are some standard formatting specifications.

For **paragraphs**, the standard is block paragraphs, meaning the first line does not indent, single space between lines, all text left justified, and paragraphs designed to be a reasonable length on the page. This usually is between 6 and 10 lines, or about 100 to 300 words. Excessively long paragraphs make finding key information difficult, and tend to discourage readers from reading all the way through.

Standard formats for **text** involves selecting an appropriate font, of a readable size. For longer documents serif fonts for the body of the text is generally encouraged, with a san-serif font used to make headings stand out on the page. For shorter documents either serif or san-serif fonts are used, unless otherwise specified. In this case it is recommended to use a different style font for headings, so use a serif heading font with san-serif text, and a san-serif heading font with serif text. The size of the font is usually 11 or 12 point, for greatest readability. Headings can be one or two points larger than the text font.

Here are some examples of both serif and san-serif fonts. Serifs refer to the little hooks attached to the ends of some letters on the serif fonts.

### Serif & San Serif Fonts

<table>
<thead>
<tr>
<th>Serif</th>
<th>Sans Serif</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baskerville</td>
<td>Verdana</td>
</tr>
<tr>
<td>Bondoni</td>
<td>Arial</td>
</tr>
<tr>
<td>Times New Roman</td>
<td><strong>BANK GOTHIC</strong></td>
</tr>
<tr>
<td>Adobe Jensen</td>
<td>Futura</td>
</tr>
<tr>
<td>Palatino</td>
<td>Helvetica</td>
</tr>
<tr>
<td>Garamond</td>
<td>Geneva</td>
</tr>
<tr>
<td>Caslon</td>
<td>Lucinda</td>
</tr>
</tbody>
</table>

Another important formatting question is how the text and graphics look on the page. One issue is the **margins** around the text. Top and bottom margins are usually one inch, and left and right margins one or 1 ¼ inch. Because you are using block
paragraphs, insert an extra space between paragraphs to indicate where a new paragraph begins.

**Section headings** are often bold, in a contrasting font, slightly larger than the text, and separated from the previous paragraph with two extra spaces.

**Page numbers** appear at the bottom of all pages except the first page, which does not have a page number.

**Graphics** are an important element in technical documents, and are formatted in a consistent manner. All graphics selected for inclusion must be carefully considered to make sure they are readable at the size they will be reproduced, do not depend on color if they will be reproduced in black and white, and clearly present the concept they are designed to illustrate.

Graphics are centered on the page, and are numbered consecutively from the beginning. Each graphic must include a **descriptive caption** that makes clear to the viewer what is being represented. It is also important that all graphics are inserted in the text as close as possible to the passage where they are discussed. If a graphic is not discussed in the text it should not be included.

**Different kinds of documents** have their own formatting guidelines. We’ll review a few here.

**Memos** are distinguished by the front matter that appears at the top of the memo. It includes four categories with three optional ones. Together these categories provide the reader with necessary information about the context of the memo.

First is the “**To**” category, which identifies each recipient by full name, title, and organization if not an internal context.

Next is the “**From**” category, which identifies each author by name, role or title, and organization, if appropriate, each on a separate line.

This is followed by the “**Date**”, using the format “Day” “Month” “Year”. The final category is the “**Subject**” which includes a clear statement that identifies the project, the type of document, and the main outcome.

- **Front matter:**
  
  **To:** Full name and title of first recipient  
  Full name and title of next recipient  
  **From:** Full name and title of sender  
  Full name and title of other sender  
  **Date:** day month year (19 October 2010)  
  **Subject:** Clear statement identifying topic, type of document, and main outcome
In addition to these four main categories three additional but optional ones may be required, depending on the memo.

First is “Distribution,” which lists the names and titles and organizations of any others, besides the individuals listed in the “To” category, who will be receiving the memo.

“Attachments” includes a clear description of any separate documents that are being sent along with the memo.

And finally, “Reference” provides full identifying information about any document that may be referenced within the memo, or relevant to the memo, that is available to the memo’s recipient and therefore is not attached.

These categories are only used if required; otherwise memo headings are limited to the four main categories: To, From, Date, and Subject.

- Optional Front Matter Categories:
  - Distribution: Full name and title of others who will receive document
  - Attachments: Full name of any separate documents sent with the memo
  - Reference: Full identification information about any document relevant to the memo, available to the recipient, but not attached

Proposals for grants or contracts usually include a format for the respondents to follow. This is for the convenience of the granting agency, and allows them to efficiently evaluate submissions. The format may be a document or pdf. file for you to fill and return.

What is most important in responding to requests for proposal is to make sure you follow all guidelines exactly, provide all information requested in the form specified, and respond within the timeline for submission. Proposals that are received even minutes after the deadline are not considered, so making sure your proposal meets its deadline is extremely important.

Lab reports will have different formats depending on the discipline and the needs of your organization. Here too it is important that you follow all formatting guidelines to allow readers to most efficiently view the information in your report.

Here are some guidelines to keep in mind when thinking about formats:

- Formats should be applied consistently within a document.
- Formats will differ within different disciplines, different organizations, and for different purposes.
- Following the appropriate format will assist readers in easily locating the information they need.
- A consistent format, within a familiar structure, allows your readers to be confident about the information you are presenting.
Worksheets for ‘The Most Important Writing Mistakes That UM Engineering Students Make and How to Avoid Them, Part 1”

Introduction to the Tutorial Lesson

In your engineering classes, and throughout your engineering career, you’ll produce many pieces of written communication, and—as you learned in the lesson on basic concepts in technical communication—you’ll be writing for people who need the information you have and who want it in a straightforward, readily accessible form. For readers of that sort, the most important features of your writing are clarity, directness, and conciseness, but for many beginning writers, those features aren’t easy to produce.

In this lesson, you’ll learn about some writing problems that cause difficulty for the reader of your technical documents, and you’ll learn some principles that will help you avoid making them. You should play the podcast and when it asks you to pause, review the material below and work through the exercise. Then return to the podcast to compare your answers with the ones we give (they’re also provided on the Solutions Sheet). When you’ve finished, you can look over the Summary Sheet to make sure that you’ve gotten the most important points of the podcast. This lesson should take you approximately 30 minutes to complete.

“The Most Important Writing Mistakes, Part 1” - Exercise

Here are the two examples you saw in the podcast. Before you start on the problem sentences, review the principles and the steps we took to fix these sentences.

PRINCIPLES

Principle 1: Use concrete nouns for your subjects and objects whenever you can.

Principle 2: Use finite verbs instead of verbals whenever you can.

Principle 3: Use the active voice whenever expressing the actor is important.

Here’s what we did with the principles:

Example 1

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>After completing the first step of the process, it will be necessary for the process to be checked for errors.</td>
<td>After the users complete the first step of the process, the developers must check the procedure for errors.</td>
</tr>
</tbody>
</table>

Example 2

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>The security feature of the device has been extensively tested, thus making it extremely reliable.</td>
<td>Our design team has tested the safety feature of the device extensively. This thorough testing ensures that the device is extremely reliable.</td>
</tr>
</tbody>
</table>
Now you try using the principles to revise these problem sentences:

1. *When exposed to UV radiation, the color will be changed from white to purple, but the other material properties of the alumina will not be changed.

2. *By repairing the damaged offshore floating breakwater, erosion of the beach will be reduced, thus protecting the ecosystem from its impact.

3. *To qualify for the competition, it is required that all published criteria be met by our vehicle before submitting the application.
“The Most Important Writing Mistakes, Part 1” - Solutions Sheet

The sentences given here are suggested revisions. Many other answers are possible, and it would be a very good additional exercise for you to come up with several more on your own.

Problem Sentence 1:

Exposure to UV radiation will change the color of alumina from white to purple but will not change its other material properties.

If alumina is exposed to UV radiation, its color will change from white to purple, but its other material properties will not change.

Problem Sentence 2:

Repairing the damaged floating offshore breakwater will reduce erosion of the beach and protect the ecosystem from the impact of this erosion.

If our company repairs the damaged floating offshore breakwater, we will reduce erosion of the beach and thus protect the ecosystem from the impact of this erosion.

Problem Sentence 3:

For our vehicle to qualify for the competition, it has to meet all the published criteria before we submit the application.

If our team is to qualify for the competition, our vehicle must meet all the published criteria before we submit the application.
“The Most Important Writing Mistakes, Part 1” - Summary Sheet

Points to remember from this module:

- Keep in mind that clarity is the most important goal in technical communication.
- Always make sure that your audience can see the causal relationships (who’s doing what to whom) in your sentences.
- Structure your sentences purposively so as to communicate or hide that information. Usually, you should choose to communicate it.

Suggestions:

- Review the glossary definitions of the technical terms in the module if they weren’t already familiar to you.
- Work through the other two modules (‘The Most Important Writing Mistakes That UM Engineering Students Make, Parts 2 and 3’ that explain more about common mistakes and how to avoid them.)
Introduction to the Tutorial Lesson

In your engineering classes, and throughout your engineering career, you’ll produce many pieces of written communication, and—as you learned in the lesson on basic concepts in technical communication—you’ll be writing for people who need the information you have and who want it in a straightforward, readily accessible form. For readers of that sort, the most important features of your writing are clarity, directness, and conciseness, but for many beginning writers, those features aren’t easy to produce.

In a previous lesson, you learned about some writing problems that cause difficulty for the reader of your technical documents, particularly by making confusion about who or what is doing the action in the sentence, and you learned some principles to help you avoid making these sorts of mistakes. In this lesson, you’ll move on to another group of writing problems that also make your reader’s job more complicated than it needs to be. This time the focus will be on making sure that your reader can tell what’s important in your sentences.

You should play the podcast and when it asks you to pause, review the material below and work through the exercise. Then return to the podcast to compare your answers with the ones we give (they’re also provided on the Solutions Sheet). When you’ve finished, you can look over the Summary Sheet to make sure that you’ve gotten the most important points of the podcast. This lesson should take you approximately 30 minutes to complete.
“The Most Important Writing Mistakes, Part 2” - Exercise

Here’s the example you saw in the podcast. Before you start on the problem sentence, review the principles and the steps we took to fix the sentence.

PRINCIPLES

Principle 1: Make the things you’re really talking about the subjects of your clauses.

Principle 2: Put important content into main clauses rather than modifiers.

Principle 3: Don’t overload your sentences with dependent clauses.

Principle 4: Use good editing practices to achieve conciseness.

The purpose of all these principles is to help you achieve straightforwardness, directness, and clarity, so that your reader can quickly identify the important content in your communication and easily understand your message.

Here’s what we did with them:

**Before:**
*It is essential that there be a safety factor in the design, because it is not impossible that instructions for the installation will not all be followed by the users.*

**After:**

Users may fail to follow the installation instructions, so the design has to include a safety factor.

The design must include a safety factor, because users may fail to follow the installation instructions.

Now you try using the principles to revise the second problem sentence:

*There is a possibility of the battery failing, would be capable of bringing about a total failure of the system under certain circumstances.*
“The Most Important Writing Mistakes, Part 2” - Solutions Sheet

The sentences given here are suggested revisions. Many other answers are possible, and it would be a very good additional exercise for you to come up with several more on your own.

Revision 1:

Battery failure may occur, and this can cause total system failure.

or

Battery failure can occur, and this can cause total system failure.

Revision 2:

Battery failure may occur, and total system failure can result.

or

Battery failure can occur, and total system failure can result.
Points to remember from this lesson:

- Keep in mind that clarity, the most important goal in technical communication, requires emphasis on the important content of a message.
- Always make sure that your audience can see what the most important ideas in your sentences are.
- Structure your sentences purposively so as to avoid de-emphasizing or burying the crucial ideas. Usually, you should put the most important content into your sentence core (the subject, verb, and object/complement).

Suggestions:

- Review the glossary definitions of the technical terms in the module if they weren’t already familiar to you.
- Work through the other module on writing problems (‘The Most Important Writing Mistakes That UM Engineering Students Make, Part 1’ if you haven’t already done so.)
Worksheets for ‘Constructing Paragraphs for Technical Readers’

Introduction to the Tutorial Lesson

In your engineering classes, and throughout your engineering career, you’ll produce many pieces of written communication, and—as you learned in the lesson on basic concepts in technical communication—you’ll be writing for people who need the information you have and who want it in a straightforward, readily accessible form. For readers of that sort, the most important features of your writing are clarity and ease of use, but for many beginning writers, those features aren’t easy to produce.

In previous lessons, you learned about some writing problems that cause difficulty for the reader of your technical documents, and you also learned about some important things you should consider as you’re constructing your technical documents. In this lesson, you’ll move on to another aspect of the writing process that also contributes to the effectiveness of your technical communication: the construction of paragraphs for technical readers.

You should play the podcast and when it asks you to pause, review the material below and work through the exercise. Then return to the podcast to compare your answers with the ones we give (they’re also provided on the Solutions Sheet). You’ll do that twice for this module. When you’ve finished, you can look over the Summary Sheet to make sure that you’ve gotten the most important points of the podcast. This lesson should take you approximately 35 minutes to complete.
“Constructing Paragraphs for Technical Readers” - Exercises

When you construct a paragraph for a technical reader, you need to keep the four characteristics of effective paragraphs in mind. Here’s a set of principles or guidelines to help you as you write and revise:

Principle 1: Try for unity — make sure that every sentence in the paragraph is clearly related to the specific topic you’ve established.

Principle 2: Craft a good topic statement — make the specific topic of the paragraph clear to the reader and forecast the development of the content.

Principle 3: Supply adequate and appropriate development — choose and organize your content so that answers the questions a careful reader would pose and follows the pattern your topic sentence leads the reader to expect. Reinforce the pattern with transitional words and phrases.

Principle 4: Achieve coherence — order the elements of the sentences so that the reader can easily see the connection between new content and previously introduced content.

Exercise 1: Unity

Problem Paragraph #1: This paragraph lacks unity. How can you improve it?

After years of research, engineers at Bell Labs have reluctantly conceded that miniaturized fuel cells for powering handheld devices remain impractical for widespread adoption. Fuel cells are good for vehicles, because the water vapor can dissipate over a broad area. They are cleaner, safer, and potentially more economical than the current batteries, which is why manufacturers of handheld devices were so eager to develop the miniature versions. They could meet the basic power demands (see Table 1) but would restrict the features that could be added.

Exercise 2: Coherence

Here’s the example we worked through:

Original version:

Piezoelectricity is the ability of some materials, particular some crystals, to generate an electric field in response to applied mechanical strain. The change of polarization density with thin material’s volume is the cause of this effect. Voltage is induced across the material by an applied stress/strain; if current is allowed to flow, it will reduce and dissipate this voltage. Oscillation of the applied mechanical stress is necessary in order to run a constant electric load (such as a light bulb) on a piezoelectric device. For example, you could charge your cell phone if you had such a device in your shoes, but only while walking, not while standing. ¹

Intermediate revision for coherence:
Piezoelectricity is the ability of some materials, particularly some crystals, to generate an electric field in response to applied mechanical strain. The piezoelectric effect results from the change of polarization density within the material’s volume. An applied stress/strain induces voltage across the material; this voltage will reduce and dissipate if current is allowed to flow. The applied mechanical stress must oscillate in order to run a constant electric load (such as a light bulb) on a piezoelectric device. For example, if you had such a device in your shoes, you could charge your cell phone, but only while walking, not while standing.

Further revision for coherence:

Piezoelectricity is the ability of some materials, particularly some crystals, to generate electrical current in response to mechanical stress and strain. The piezoelectric effect results from the change of polarization density within the material’s volume when mechanical stress is applied. This applied stress and resulting strain induce voltage across the material; this voltage will reduce and dissipate if current is allowed to flow. Current to run a constant electric load, such as a light bulb or cell phone) on a piezoelectric device requires oscillation of the applied mechanical stress. For example, if you had such a device in your shoes, walking (an oscillating motion) could charge your phone, but not standing.

Problem Paragraph #2: This paragraph lacks coherence. How can you improve it?

Lasers have found numerous applications in non-industrial settings. Some surgical techniques now involve lasers. The frequency and focus of the laser beam can be adjusted according to the absorption capacity of the tissue involved. The eye is ideally suited for laser surgery. Most of the tissue is transparent. The beam can ‘cut’ inside the eye with minimal damage to the surrounding tissues. This includes even the tissue between the laser and the incision. Diabetic retinopathy, along with many other eye diseases, can be treated, and some forms of blindness can be prevented with lasers.
1Adapted from ‘Piezoelectricity,’ Wikipedia, the free encyclopedia, www.en.wikipedia.org
“Constructing Paragraphs for Technical Readers” – Solutions Sheet

The versions given here are suggested revisions. Many other answers are possible, and it would be a very good additional exercise for you to come up with several more on your own.

**Problem paragraph #1: Intermediate revision**

After years of research, engineers at Bell Labs have reluctantly conceded that miniaturized fuel cells for powering handheld devices remain impractical for widespread adoption for two reasons. First, the water vapor they produce needs to be dispersed over a broad area. Second, although they could meet the basic power demands (see Table 1), they would restrict the features that could be added.

Note that to improve the paragraph further, you would need additional **content**.

**Problem paragraph 2: Possible revision for coherence**

Lasers have found numerous applications in non-industrial settings; these devices are now being used in surgery, for example. Laser surgery is particularly suitable for the eye, because the frequency and focus of the laser beam can be adjusted according to the absorption capacity of the tissue involved, and most of the tissue of the eye is transparent. The beam can thus ‘cut’ inside the eye with minimal damage to the surrounding tissue, even the tissue between the laser and the incision. Laser surgery can treat many eye diseases, such as diabetic retinopathy, and prevent some forms of blindness.
Constructing Paragraphs for Technical Readers – Summary Sheet

Points to remember from this module:

- Keep in mind that clarity is the most important goal in technical communication, and that well-constructed paragraphs make your message clear to busy readers.
- You should always make sure that your readers can see a connection between every sentence in your paragraph and the specific topic.
- You should order the elements of your sentences to give readers ‘new’ information in a context of ‘given’ information, so that connections between sentences are easy to see.
- If you use transitional words and phrases carefully, you can both reinforce the pattern of development and improve the coherence of your paragraphs.

Suggestions:

- Review the glossary definitions of any technical terms in the module if they weren’t already familiar to you.
- Work through modules on audience and argumentation, if you haven’t already done that, so that you’ll have a good sense of how to develop your content with the needs of particular readers in mind.
Worksheets for ‘Seven Simple Strategies for Designing Effective Slides’

Introduction to the Tutorial Lesson

As a student and future professional, you will need to deliver oral presentations, both formal and informal. Therefore, you will need to understand just a few basic principles to help strengthen your ability to develop presentations. In general, you can think of developing a presentation as a three-part process: first, focusing the message and creating the content that you want to deliver; next, developing effective multimedia accompaniments to the spoken text, such as slides, video or audio; and finally, practicing to achieve a smooth and natural delivery. In this tutorial, we focus on the second stage: developing effective presentation slides. After you've completed this tutorial, you will have become familiar with a set of useful design guidelines for developing slides to accompany and support a technical presentation.

Oral Presentations-Designing Effective Slides Exercise #1

Assume that the purpose of showing this slide is to introduce your audience to the three different types of instruments that you developed. How would you improve the design of this slide? You can view the podcast for a possible solution.
Oral Presentations-Designing Effective Slides Exercise #2

Assume that the purpose of showing the following slide is to explain the main tasks required to repair the assembly lines to your audience. How would you improve the design of this slide? You can view the podcast for a possible solution.

We have two main tasks associated with fixing the assembly lines.

First, we need to determine the total horsepower required to run operations 2, 3 and 4.

Then, we need to determine whether the electrical system needs to be replaced.
Oral Presentations-Designing Effective Slides Exercise #3

Assume that the purpose of showing the following slide is to explain the main design features of a new product, the ‘Epad,’ to your audience. How would you improve the design of this slide?
In the previous slide, the audience has to search for the focus of the slide...is it to explain the features or to identify the cost? The slide does not have a title to tell the reader what the slide is about. The contrast of the text is poor, light grey on white background, which makes it difficult to read. Also, the slide does not use varied font sizes or indentation to prioritize the information. The audience is left to imagine the actual appearance of the ‘Epad’.

One possible solution would be to focus on the design features and identify them by pointing to them on a picture of the E-pad. The cost information can also be added to this slide or be placed on a separate slide (as shown below) with competitive cost information.
“Seven Simple Strategies for Designing Effective Slides” - Summary Sheet

1. Consider whether you need the default settings (such as a textbox or bullets) on the software for your particular purpose.

2. Highlight your main points by using highlighting, bold styles, color or arrows.

3. Use a readable font size so that the text can be read even from the farthest point in the presentation room.

4. Use varied font sizes, indentation and telegraph (shortened) style to help to focus your points.

5. Use contrast between the background and the foreground (text or graphics) so that the material on the slide is clear to the audience.

6. Avoid clutter or too much text or graphic on one slide.

7. Use chart animation only to highlight a particular point or to show a sequence of stages. Avoid excessive ‘chart motion.’
Worksheets for ‘Strategies for Developing Content for Presentation Slides’

Introduction to the Tutorial Lesson

As a student and future professional, you will need to deliver oral presentations, both formal and informal. Therefore, you will need to understand just a few basic principles to help strengthen your ability to develop presentations. In general, you can think of developing a presentation as a three-part process: first, focusing the message and creating the content that you want to deliver; next, developing effective multimedia accompaniments to the spoken text, such as slides, video or audio; and finally, practicing to achieve a smooth and natural delivery. In this tutorial, we focus on the second stage: developing effective presentation slides. After you've completed this tutorial, you will have become familiar with a set of useful content-related guidelines for developing slides to accompany and support a technical presentation.

Strategies for Developing Content for Presentation Slides Exercise #1

Assume that the purpose of showing the following slide is to explain the recycling costs and emissions associated with various solar frame materials. How would you improve this slide so that the content is clearer? You can view the podcast for a possible solution.

Recycling Costs and Emissions of various materials

- $7.75 Glass
- $4.50 Plastic
- $8.00 Epoxy
- $5.50 EVA
- $1.00/kL Glass
- $2.50/kL Plastic
- $5.00/kL Epoxy
- $6.25/kL EVA
**Strategies for Developing Content for Presentation Slides Exercise #2**

What are possible ways to show that the information that you have collected is from a credible source? See the podcast for possible alternatives.

![Figure 1. Manufacturing Costs, Cost of Energy from Recycling, and Emissions associated with solar frame materials](image)

**Strategies for Developing Content for Presentation Slides Exercise #3**

Assume that the following slide is intended to be a title slide in a presentation? Can you improve the content? If so, how?
The objective of the title slide is to inform the audience about the point of the presentation. In Exercise #3, the team name is highlighted, but the title slide is actually missing a title. In addition to this, the slide should have a date. A title slide often includes the name(s) of the presenter(s) and the date. Also notice that the graphics on this slide are used for aesthetics rather than for a practical purpose. You will find that, often times, graphics on a title slide are not used by the presenter for a specific purpose, and therefore, are included just to create interest.

Strategies for Developing Content for Presentation Slides Exercise #4

Assume that the following slide is intended to provide information about a design process related to constructing an ergonomic chair. Can you improve the content? If so, how?

The slide shown above can be improved in several ways. From a design standpoint, the text is small and difficult to read, there is no apparent focus or hierarchy of information. The text does not have enough contrast with the background (black text on dark blue background). From a content perspective, there is too much language on the slide for the audience to read. The information is not grouped in any particular way. The title is not detailed and descriptive... 'Design Process' could refer to many different processes.

The following slide is improved because it has a better, more descriptive title, is easier to read and more clearly explains the steps in the design process.
The slide design and content could be configured in a number of ways depending on how the presenter wants to focus the audience.

Another way to improve the slide with the title ‘Design Process’ would be to use the following two slides. Depending on how the presenter wants to frame the discussion, the presenter could verbally explain the design process and direct the attention of the audience to the results of the design process. The information on the two slides show the ergonomic design features and the use of recycled materials on different slides.
Ergonomic Design Features

- Armrest Height and Angle Adjustment
- Adjustable lumbar support
- Swivel and Height Adjustment
- Seat tilt adjuster

Use of Recycled Materials

- Recycled Polypropylene in the seat and chair back
- Recycled Steel in the back and seat frame

http://www.ergonomic-chair-office.com/gallery
“Strategies for Developing Content for Presentation Slides” - Summary Sheet

1. Develop a clear and apparent structure with an Introduction, Overview or Forecast and Conclusion, so that the audience can easily follow your presentation.

2. Avoid information overload. Try not to overwhelm your audience by presenting more information than they can process.

3. Group information into logical bits.

4. Use clear and meaningful titles on slides.

5. Use and cite reliable resources.

6. Make numbers meaningful by providing a context for the values.

7. Use parallelism so that the reader will have an easier time developing relationships between points if the language pattern is consistent.