GUIDELINES
FOR
ORAL COMMUNICATIONS
AND
TECHNICAL PRESENTATIONS

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

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PREFACE

This document was prepared by members of the Communications Committee of the Electrical and Computer Engineering Department during the 1995/96 academic year. The purpose of this document is to assist Electrical and Computer Engineering students in developing skills for effective oral communications and technical presentations.

Engineers should be proficient communicators and have good verbal skills as well as excellent mathematical and analytical skills. An engineer's workday will require oral reporting to a variety of audiences, including subordinates, peers, supervisors, and groups. Typical examples of oral communication situations are: telephone conversations, briefings, instructions, reporting, and technical paper presentations.

This document provides guidelines for preparing oral presentations, visual aids, and delivering your talk.

TABLE OF CONTENTS

Section **Page**

1. OVERVIEW OF ORAL PRESENTATIONS

Success in the engineering profession will require excellent written and oral communication skills as well as technical competence.

After all the experience an individual gains by talking, he/she should be a very good communicator. However, the prospect of speaking in public will make many individuals uncomfortable. Therefore, the objective of this document is to help you improve your oral communication skills. Then you can become more effective in conveying your ideas and persuading your listeners to accept them.

Oral presentations are similar to technical writing. They require the knowledge of how to structure, develop, and present ideas. An oral presentation will require planning, audience awareness, and attention to details.

However, there are major differences between technical writing and oral presentations. This is primarily due to the communication medium being different. Your voice, eye contact, body language, visuals, and selected equipment will have a substantial impact on the listener as compared to the printed pages of a report.

When reading a technical report, the reader can skip a few pages and then go back and reread certain sections of the report. But when you present an oral report, your spoken message should flow through time. Your audience will listen in a linear way. Consequently, you should take these differences into consideration from the planning stages through the delivery of the talk.

In the following two subsections, the distinguishing features of the informal and formal presentation are highlighted.

1.1 Informal Presentations

As a student or an engineer, you will have many occasions to communicate and present your thoughts informally. The individuals to whom you are presenting your ideas might be your professors, colleagues, supervisors, vendors, or customers. Improving your presentation skills will save you time and effort in the future. Remember that a poor presentation can lose customers, turn off supervisors, etc.

The informal presentation can yield better results if you take a few minutes to:

- Define a purpose
- Sketch an outline
- Limit your content to key points

In contrast to writing a technical report, you do not have time for many details, since informal presentations may last only a few minutes. Typical examples of informal talks or presentations are:

- o Telephone Call
- o Oral Briefing
- o Instructions
- o Reporting

You will frequently have to *Call* other individuals to inform them of the new findings. The telephone call can be made more effective by a few minutes of preparation before you make the call.

Oral Briefing is usually a short progress report about your work. You might give a short informative talk about your laboratory results, a new procedure, or a policy.

Instructions are typically given to engineers, technicians, or other individuals working with you on a project.

Reporting can be a brief presentation at a meeting. The audience can be a mix of managers and technical individuals.

1.2 Formal Presentations

Engineers are likely to be asked to write papers and present them at national or international conferences. Other possibilities would be a formal presentation to the company management, or to the customers in a marketing capacity.

The task of a formal presentation is more challenging than an informal talk. You certainly need to spend a considerable amount of time preparing for it. Your audience is larger and you may be less at ease, since your surroundings are unfamiliar. You might be tempted to simply read your paper or prepared notes. This is not advisable, since your audience may fall asleep or sneak out when you are not looking!

To be successful in formal presentations, you need to spend some time doing a thorough analysis of your purpose, audience, and situation. A careful preparation of content and visual aids are essential. You need to structure your presentation such that it is appropriate and effective for the occasion. Do not forget that “practice makes perfect”. The more you practice, the better you will be at delivering your talk.

2. PREPARING FOR ORAL PRESENTATIONS

In preparation for oral presentations, an inexperienced speaker is often tempted to do the following:

- o Make the talk overly detailed
- o Focus on personal interests
- o Believe naturalness will come without practice

The following subsections provide some guidance in preparing oral presentations.

2.1 Presentation Types

Oral presentations are usually one or a combination of the following basic talks:

- o Impromptu Talks (Informal)
- o Manuscript Talks (Formal)
- o Highly Prepared Talks (Formal)

For an *impromptu talk*, you will not have adequate preparation time. You may have been called to speak at a meeting, or you need to respond to an unexpected question. Although the time to respond is very short, you need to collect your thoughts before you speak. Use the available time to your advantage and decide on the order that you will present your ideas. If you can manage, write down a few notes on whatever is handy. Then take a deep breath, look at the audience, and begin your talk.

The *manuscript talk* (reading your paper) is usually not advisable. However, this is the only means of presenting material that must be highly accurate and precise. Many presentations at the engineering conferences by high level executives are given in this manner. Regardless, the presenter should remember that if he/she presents the talk in a monotone or without adequate preparation, the audience will be extremely disappointed.

To make your manuscript talk more effective, you need to pay attention to the following points:

- o Prepare your talk by typing it in large print. This will allow you to look away from the page and maintain a good audience contact.

- o Break sentences into rhythms of normal and graceful speech. This will help you to speak more naturally.

- o Leave large spaces between the lines and the paragraphs. This will help you keep your place without gluing your eyes to the page.

- Use notations in the text in parentheses and capitals. Typical examples are (PAUSE) or (LOOK AT AUDIENCE).

- Use a highlighter to identify the important ideas and the key points. This will remind you to add stress where it is appropriate.

- Remember the key to reading a talk effectively is to practice. Try reading in front of a mirror or into a tape recorder. You should be your toughest critic, so you will be better prepared to face the audience.

The *highly prepared* presentation will require extensive planning. A well executed presentation seems natural and conversational. The level of interaction of speaker and audience is high. The presenter must have all of his or her ideas clearly thought out, but the exact choice of words will come as the talk proceeds. The following steps are typically used to prepare for the talk:

- Familiarize yourself thoroughly with your subject. You need to be very knowledgeable if your presentation is to be interesting and smooth.

- Perform a thorough audience analysis. This will let you anticipate which aspects of the subject will interest the audience.

- Develop an outline that best suits your purpose, audience, and situation. You may use it to help you remember the necessary points and details of your report.

- Write down the major ideas and facts, then prepare visual aids.

- Practice the talk until you feel at ease with it. However, stop before you have completely memorized it. Memorizing a talk will be detrimental.

2.2 Limiting the Material

In planning and organizing a technical presentation, the presenter should be aware that a significant amount of information will be presented in a short time. Therefore, you do not need to include absolutely every point that was a part of your work. You can use the following procedure for planning a briefing or a presentation.

First, think about the most important point of your work. This is the point that you absolutely want the audience to understand. Write this out at the top of your planning sheet.

Second, list the other points that you consider to be very important and will also be of interest to your audience. This step will be useful when you develop the visual aids such as slides or transparencies.

Third, consider how many points you will be able to discuss in the available time. Prioritize the most important ones. During your practice period you will get a rough idea of how much you can cover in the available time. You will probably find that you have too much material rather than too little.

Fourth, determine the best technique or form for presenting them. Remember that listeners often require a different approach to comprehend the material as compared to readers.

If you pay attention to the above four steps, you can define your objectives and adequately plan your presentation.

2.3 Audience

An inexperienced speaker may spend a lot of time preparing the content of his/her talk, and ignore the needs of the audience. A speaker who spends time thinking carefully about his/her audience puts himself/herself at a clear advantage.

You should think of your presentation as a cooperative effort by you and your audience. They always have a profound effect on the success of your talk. Consequently, you need to focus on ways to engage them in listening in the most effective way. A good speaker makes a very careful analysis of the audience.

2.4 Presentation Setting

The presenter will be at an advantage if he/she can review the physical layout or the scene of the presentation area before developing the talk. But this might not always be possible. However, if you can inspect the presentation setting, then you can plan for ways to overcome unforeseen problems and adapt your presentation to your surrounding. You need to pay attention to the following:

- Room size
- Seat arrangement
- Adequacy of vision
- Acoustics quality
- Availability of a P.A. system
- Adequacy of lighting system
- Availability of writing surfaces (Chalkboard or a Flip Chart)

- o Availability of a table for your material
- o Availability of an overhead/slide projector
- o Availability of a video projection system, VCR and computer
- o Availability of a screen
- o Availability of a pointer

2.5 Main Parts of Presentation

Presentations usually have three parts: the introduction, body, and conclusion. The optional fourth part can be the question and answer period. Each of the parts will require careful preparation. Your listeners will expect a well-organized and concise presentation.

The opening or the *introduction* is crucial to your presentation. You need to arouse your listeners' interest and curiosity, impress upon them the importance of your subject, and convince them of the worth of your ideas as well as your knowledge and understanding of the material.

The length of your introduction should be no more than 10% of the entire presentation time. You need to accomplish the following tasks in the introduction:

- o Introduce yourself, collaborators or co-authors, and your subject
- o Define your purpose and scope explicitly
- o Capture your audience’s interest

The *body* of your talk is the longest section of your talk, and it presents the substance of your presentation. To organize your talk, you should pay attention to the following:

- o Category:
  Arrange information and ideas in a logical manner.
- o Device or Object Description:
  Focus on physical attributes.
- o Process Description:
  Explain a step-by-step analysis of the procedure.
- o Problem Solution:
  Setup a set of criteria against which you measure your solution.
- o Analysis:
  Examine a concept or a process by considering its components.

In any case, you need to fit your choice of organizing to the interests of the audience. For example, do not present a detailed chronological narrative of how you solved the problem if your listeners are primarily interested in why a solution is superior to another. Do not present a long technical description to an audience of managers who are primarily interested in cost and new applications.

Always maintain a view of your audience as listeners rather than readers. Make the organization of your presentation very clear to them. Remember that listeners will not process your material in the same way that a reader of your written report would process the information.

In your technical reporting, you have learned to put all of the important material at the beginning of the report (in the summary and introduction section). One major difference between a written and oral report is that the oral report should have an impressive *conclusion*. Even if you already have mentioned the final outcome of your work, you should restate it at the end. Remember that the ending of your talk plays a dynamic role in the success of your whole presentation.

You can make an ending memorable by accomplishing the following:

- Implant your major points in the minds of your audience
- Bring your presentation to a fitting and memorable close

You can close your presentation by including a quick summary of the important points covered in the body. Then you should end with a significant closing remark. This depends on your purpose, situation, and other variables related to your presentation. Therefore, utilize one or more of the following:

- Make a recommendation
- Offer a prediction
- Issue a challenge
- Make a judgment
- Suggest an application
- Cite a surprising statistic

The *question and answer* period that typically follows the conclusion of your presentation provides an excellent opportunity for an active interchange between the speaker and the audience. One advantage that a speaker has over the writer is the opportunity for immediate feedback. As a speaker you can clarify the points that may have been poorly understood.

The way to prepare for the question and answer period is to anticipate questions that the audience might ask. Don't worry if you don't know the answer to every question. Simply admit it and tell the questioner that you need to look into that question more deeply.

3. PREPARING VISUAL AIDS

"A picture is worth 1000 words." It is difficult to imagine an oral report that is strictly oral and does not contain some form of visual aid. A presentation without visual aids will appear dull and suggests inadequate preparation by the presenter. You will attract the attention of your audience if they are required to look at your visual aids.

Good visuals provide many advantages for your presentation. Effective visual aids are essential to success of your presentation. On the other hand, poorly designed visuals will jeopardize the effectiveness of your presentation.

In addition to the advantage of visual aids, there are other reasons for incorporating them in your presentation. In particular, having visual aids will help you to deliver your talk without a need to refer to your notes too often. Also, visual aids will provide a pause in presentation, and will give the audience a chance to digest the material that is being presented. It will also provide repeatable material for the purpose of answering questions and strengthening particular points.

Visuals can range from the very simple chalkboard drawings to highly complex three-dimensional computer displays. Regardless of the type, visuals must be carefully designed to enhance your oral presentation. As you plan and design visuals for your presentation, keep in mind that they can enhance your presentation in the following ways:

- Augment your message
- Emphasize and clarify key points
- Focus attention and help your audience to remember your message

3.1 Types of Visuals

There are five different types of visuals,

- Text Visuals
- Mathematical Visuals
- Graph Visuals
- Photograph Visuals
- Drawing Visuals

In preparing the *text visuals* you should pay attention to the recommended font size of Section 3.3 and adequate blank space for each visual. Remember not to overcrowd your visuals.

While preparing your *mathematical visuals*, be sure to pay attention to the following recommendations:

- o The size of equations must be large enough to be seen comfortably by everyone
- o Ample blank space must be provided so that equations do not look crowded
- o It is essential to pay attention to neatness and accuracy

Even though you have paid attention to neatness and accuracy in developing visuals with mathematical content, you still can make a detrimental mistake. You should remember that when it comes to equations, simplicity is very important. A typical mistake is to include too much of the equation, or too many equations in too little space.

Be sure to simplify the *graph visuals* as much as possible. A good graph should not look busy. Cross hatching and multiple lines can be very confusing. Use colors if you can to reduce the confusion level. Make sure that you have labeled the axes.

Photograph visuals are necessary when you need to show the details. Be sure to tell the audience what they are looking at. The disadvantage of photographs is that they are very difficult to convert into the visuals, and you need to have access to professional facilities that can convert photographs to visuals.

Drawing visuals should be simplified and adequately labeled. Remember to delete all non-essential material. For some drawings you should provide a scale to help the viewer to imagine the true size of the device.

3.2 Visual Equipment

There are many types of visual aid equipment, and the simplest type is the *chalkboard*. The presence of a chalkboard at the presentation site should be welcome even though it is not suitable as the main source of your visual aids. The chalkboard gives you a quick way to augment your presentation with temporary sketches, data, etc.

Overhead projector and transparencies are another type of visual aid. The transparencies should be prepared in advance, and the overhead projector is typically available at the presentation site. A projection screen should also be available at the presentation site. Preparation of transparencies while the presentation is in progress is not recommended, since it will consume a considerable amount of time. In addition, on the spot development of the transparencies will result in poor quality visual aids and mistakes are probable. However, it is a good idea to carry a few blank transparencies and markers in case you want to expand your topic or respond to questions.

Thirty-five millimeter slides are another type of visual aid. 35-mm slides give the presentation a very professional appearance. The only disadvantage of the 35-mm slides is that their preparation will require a relatively long time. Therefore, you need to start

preparing for them well ahead of the presentation date. Also, changes to the existing slides and preparing new ones are costly and it is not very convenient. Many places where the presentation takes place are equipped with a slide projector and screen. You may want to check and make sure that the remote control for the projector is provided, and that there is a spare projection lamp with the projector.

Video tape is a modern type of visual aid and requires a TV monitor and a VCR. This is an ideal method of presentation for viewing by very large audiences at different times. High sound levels for the recorded material is necessary. Video tapes are not as amendable as still picture visual aids such as transparencies and slides. They typically require professional production and tend to be expensive. The lead time is also quite significant.

Computer display/projection is the state-of-art technology in presenting technical material. Computer software such as Microsoft's PowerPoint has a lot of pizzazz, since extensive special effects are made available to you for preparing your presentation. However, remember that too much reliance on special effects can detract the audience from the talk. The requirement of a large screen projector and a computer might rule out using this type of visual aid. But, it is expected that this type of presentation will become very popular in the near future.

3.3 Criteria for Visuals

Several desirable features are common to all of the various types of visual aids discussed previously. They are visibility, simplicity, manageability, portability, repeatability, amendability, convenience, and ruggedness.

3.3.1 Visibility

You need to make sure that your audience, even those in the last row, can see all of the details. Lettering that is too small to read will irritate and confuse the audience. Keep the suggested font sizes of Table 4.1 in mind. Line drawings should have a line width which is adequate for proper projection (suggest at least 1 point).

Table 4.1. Suggested Font Sizes

	HEADINGS	SUB-HEADINGS	TEXT
Transparencies	36 pts.	26 pts.	20 pts.
Slides	26 pts.	22 pts	18 pts.

Each visual should have the following features:

- o Only one major point
- o Adequate blank space
- o Simple clear font
- o Clarity
- o Bold
- o Ample margins

You need to use upper and lower case letters. Writing completely in capitals is more difficult to read. Bullets and parallel structure will focus attention on key parts of the visual.

3.3.2 Simplicity

You should present the essential information, and limit each visual to a few lines of text. Only the key ideas should be used as an overview of your talk. Phrases are preferred over complete sentences. Remember to use simple words and simple definitions of unfamiliar technical words. Pictures and colors are very effective in conveying information to your audience.

3.3.3 Manageability

Visual material should not be so complicated as to distract the audience or interfere with the presenter's concentration. You should be able to handle them with ease. Number the visuals to avoid disasters such as getting them mixed up after they have been accidentally dropped. It is a good idea to place them in appropriate holders to facilitate handling. Cardboard frames are good holders for transparencies, although they are expensive.

If you are using transparencies, keep a plain sheet of paper between each so that you can easily recognize which visual is coming up next. In addition, you can write brief notes on the paper between the transparencies. These notes can be helpful during your presentation.

3.3.4 Portability

The ease with which your visual aid can travel with you, and be ready for use as you present your report to various audiences at different locations is important. You should keep this in mind when you prepare your visual aids.

3.3.5 Repeatability

If you are making the presentation a number of times, good visual aids will help you to make the same presentation each time.

3.3.6 Amendability

It must be convenient and easy to add to, delete from, or alter the content of the visual aids as circumstances require. The type of visual aid you choose will determine how amendable your visual aids will be.

3.3.7 Convenience

The presenter must be aware of the facilities that are available at the presentation site. Facilities in question are projection screens, overhead projectors, 35-mm slide projectors, projection televisions, computers with large screen monitors or projection facilities, P.A. systems, etc.

3.3.8 Ruggedness

Some types of visual aids travel better than others. Thirty-five millimeter slides are compact and may be easily transported and stored. Overhead projector transparencies, so called "viewgraphs" also have this property. Video recordings and flexible diskettes are somewhat less sturdy, as both are subject to damage from heat and magnetic fields.

3.4 Organization of Visuals

You can enhance your talk if you aim for variety in your choice of visuals. You are limited only by your resources and your imaginative powers. It is essential that you put yourself in the place of the audience as you prepare your visual aids. The most common error that presenters will make is to put too much information on a single transparency or slide. Be sure that the text or picture will completely fill the page without over-crowding it. To do this, you can use an enlarging or reducing copying machine to prepare graphs, drawings, etc.

Remember that the order of showing the visual aids must exactly follow the text of your talk. You should aim for a perfect balance. Make your visuals adequately informative, and offer enough information to give a useful and impressive overview of the talk.

You need to use an introductory visual to arouse audience interest, their curiosity, and to impress them with the importance of your material. Your first visual should provide the title of your report, your name and co-authors names, and your affiliation.

Complete the opening of your presentation with another visual which contains a concise list of the major points that you will discuss. However, you should avoid using any visual that does little but waste space and time.

When preparing visuals for the body of your talk, pay attention to the following guidelines:

- o Keep the amount of information on the visual to a minimum
- o Use phrases rather than sentences when possible
- o Provide plenty of blank space to make visuals easy to read
- o Label all important parts of the picture very clearly
- o Make the lettering large
- o Limit the number of visuals

At the end of your presentation provide a summary/conclusion visual to emphasize the major inferences that you have drawn from the facts, analysis, and arguments of your presentation. Aim at distilling the essentials from your material. Do not overwhelm your listeners with too many words.

4. DELIVERING THE TALK

After preparing a well-organized talk and developing the necessary supporting visuals, you will need to concentrate on your delivery. Although you have spent a considerable amount of time on preparation, much of your message delivery is dependent on your nonverbal communication skills.

While delivering your talk, you need to pay attention to control of body, control of voice, audience interaction, and courtesies.

4.1 Control of Body

The body language you project is very important in keeping the audience involved with your talk. Your body movements should be natural for you. If you normally "talk with your hands", don't try to avoid doing the same during your talk.

If you use a pointer during your talk, keep it under control. Use the pointer to point to the screen and not to the transparency on the projector. Hitting people with an out of control pointer is not conducive to a good talk. The laser beam from a laser pointer can be painful should it be pointed into the eyes of the audience, so keep it under control. Don't use the pointer as an exercise medium, avoid "pointer gymnastics".

You must be conscious of what your hands are doing during your talk. Keep away from any suggestive movement or placement of your hands. If you have pockets, keep your hands out of them.

You'll want to keep your movements rather fluid. Jumpy, quick movements with no purpose are very distracting to the audience. Most presenters detract from their presentation when they move around the room for no apparent reason. Unless you are moving around to illustrate a point, stay fairly close to where you started. Do not block the audience’s view of the screen.

4.2 Control of Voice

Project your voice to the last row of the room. This is done by bringing your voice up from your diaphragm. Don't shout, but speak loudly enough so that the entire audience can hear you. Use the natural frequency of your voice. Unless you are trying to sing, trying to change the pitch of your voice will be distracting to the audience.

If you are using a microphone and sound system, speak into the microphone. Keep the microphone an appropriate distance from your mouth for clarity, and never shout into a

microphone. In addition, do not touch the microphone. The microphone should be adjusted before the talk.

4.3 Audience Interaction

You want each member of the audience to think you are talking to them alone. This is most easily accomplished by making eye contact with members of the audience. Look right into the eyes of an audience member for about five seconds. Five seconds is sufficient to gain their attention, but not long enough to make them feel singled out.

If there is a slide on the screen, it must pertain to what you are talking about. When you are through with the slide, remove it from the overhead projector, or turn off the slide projector until you need to use it again.

Make sure your audience can see your visual aids. It is best to stand to the side and slightly in front of the screen. This permits you to point at things on the screen, and keeps you out of the audience's line of sight. Do not stand between the projector and the screen unless the projected image is focused on you, in which case you should wear white! If you must write something on a transparency, do so then step away from the projector so the audience can see the screen.

Your audience will respond to what you wear. The response of the audience is negative if you look like you just stopped by on your way to a party, concert, wake, etc. Dress professionally and conservatively. Dress is not so important if you are making a presentation to your work team during a team meeting, but away from that setting keep it professional and conservative.

4.4 Courtesies

There are some common courtesies that should be observed. An example is thanking the person that introduces you. It is courteous and professional to *start on time* and *finish on time*. Apologize to your audience only for those things under your control that went wrong. If you are the fifth speaker and are starting late as a consequence of the previous speakers finishing late, you have no need to apologize for starting late. The audience knows what happened.

Thank your audience for their attention, and particularly for any participation. If you kept them involved, they will also thank you.

The single most courteous thing you can do is practice your talk before you present it. Practice with your visual aids. Practice body language if necessary, and certainly practice projecting your voice.