

# **Presentation Skills for Engineers**

## **Introduction**

Engineers are often asked to give presentations to either internal or external audiences. Sometimes giving presentations is a normal part of the engineer's position but is often only an occasional occurrence. Though well versed in the technical nature of a subject, engineers are often not prepared to give effective presentations. Most engineering degree programs concentrate on the skills to insure competency in the numbers. This leaves little time to teach speaking and relational skills. This course will help the engineer become a better presenter by learning some techniques which will lead to presentation skill improvement. Improvement in presentation skills will enhance knowledge transfer.

It is all too often that a good message is lost because of a poor delivery. That is a disappointment since a lot of work has usually gone into the message. No matter if you are preparing your first presentation or you've given hundreds, this course will offer something to improve your skills. In this training, great presentations are divided into three components: Planning and Organization, Delivery, and Closure with Questions and Answers.

This course is about the packaging and delivery of the message more so than the message itself. The message is where you are the expert. The objective of this class is to help you deliver it more effectively and convincingly.

## **Planning and Organization**

### **Planning**

So, you have been asked or have volunteered to give a presentation. Don't be concerned if you are nervous. You will find that as you become more prepared, the nervousness will fade. Planning builds confidence and knowledge which stifles the fears behind most nervousness. Remember that even the greatest message coupled with a poorly prepared speaker will always yield undesired results. You can prevent that with proper planning.

The first step in planning is to answer a series of questions that will allow your presentation to be both appropriate for the audience and accomplish your objective. Thorough planning is a step too often taken lightly but it is the key to elevating the quality of the presentation.

We begin with a series of questions that need to be answered before the development of each presentation:

1. Will the presentation be delivered internally or externally?

Internally, presentations are made to advance an idea within a company. Perhaps a new product or service needs to be approved before offering to the public. Maybe it's a

project to reduce cost or replace equipment. Whatever the case, the idea must be well presented to move forward. Internal presentations are usually less formal and delivered to a familiar audience. This pretense can change somewhat in a larger company. In a larger company, more due diligence must be performed to understand the audience and their expectations. This is because in a large company there is often less interaction between the multiple levels. Even though it is presented to a familiar audience, the presentation deserves the same preparation diligence as one delivered externally.

External presentations are usually to sell a concept to an audience. The concept may be to buy your product, service, or idea. In some cases, it is simply to inform the public. Even though it is for informative purposes, a positive outcome is still desired. Occasionally, persons are offended by the use of the term “sell” because it leaves the connotation of something being forced or coerced on someone. In all reality, we are always selling to others whether it is our ideas or ourselves. In order to be successful in this effort, the audience must be thoroughly understood. For that reason, external presentations require more preparation time to understand the audience than do internal ones where the audience is more familiar.

## 2. Should the engineer actually do the presentation?

Occasionally the person who has crunched the numbers and performed all of the technical legwork may not be the best person to do the presentation. It is not uncommon for a tag team approach to be used where a speaker with more refined presentation skills delivers the message accompanied by the technical person to answer the questions. A better use of resources is to do this only on a limited basis and eventually develop the skills of the team members such that each person is comfortable delivering the message.

## 3. What is the objective of the presentation?

It may be hard to believe, but this question is sometimes not completely answered. In all cases, the purpose of your presentation needs to be crystal clear. This begins with writing down the objective in one well focused statement. This is the backbone that the meat of the speech is built around. Everything needs to build upon and support this objective. The ability to meet or not meet this objective is the measure of the presentation’s success.

Some examples of objective statements are: “To get the council to accept the proposal”, “To inform the concerned citizens why the bridge needs to be widened”, “To secure funding to replace the #3 packaging line.”

## 4. Who is the audience?

Answering the question “Who is the audience?” will determine the proper tone and verbiage for your presentation. Try to surmise the overall tone of the audience in one word such as hostile, supportive, indifferent, curious, etc...

The presenter must understand why the audience is there and what they hope to gain. A good method to understanding this is to get the names of several audience members if you don't already know them. Next, call them and find out what they hope to learn from the presentation. Be sure the presentation answers their concerns and questions. This step also portrays you as a speaker who is truly concerned about the audience's needs. In addition, this often uncovers hidden issues you may not have been aware of.

The presenter must also learn the demographics of the audience. Recognize that the technical content in your presentation must be understood by the least technical person in the audience. If you must use technical terms beyond your audience's knowledge level, be sure to define them. Never assume they are understood.

Be aware that members of the media may be in attendance at your presentation. If the media is present, anything you say could become a news snippet. The presence of the media should not be viewed as a negative, but as an opportunity for your message to reach a broader audience. If possible, offer to meet with media personnel one-on-one after the presentation to give them a chance to clarify any information they may wish to address.

5. Are there known or hidden emotional issues?

These are the issues that distract from the facts but are often perceptions that can drive decisions. Emotional issues need to be addressed early in any presentation. They come up most often in civic projects (especially those involving tax increases), environmentally significant projects, and any project where people feel something is being forced on them. Concentrate on the positive aspects that most of the audience can agree on. In other words, try to find one point that unifies. This does not mean to ignore the divisive issues, but rather make the audience aware of some common ground.

6. Will audio visuals be used?

Audio visuals enhance a presentation but should not become the presentation. If the presentation can be done exclusively through audio visuals, then the presenter is not necessary. Remember the speaker is the messenger and the message, not the audio visuals. You also need to be sure that the audio visual fits the location of the presentation. You would not want a small television playing a video in a large room. Just be sure that your audio visuals are properly selected for the venue.

7. Are there any problems with the location?

If at all possible, visit the location before your presentation. The layout of the room is important as to where you will stand, location of the receptacles (if needed and if extension cord is required), and whether a microphone is needed. If the room will need to be darkened for the presentation, check to see if there are windows that have shades. As mentioned above, the size of the room will also affect the type of audio visuals. A flip chart would be more appropriate in a board room setting than in a very large auditorium.

8. Are other speakers on the agenda?

If other speakers are on the agenda, are they offering competing ideas or proposals? If you end up on an agenda with competing speakers, try to go last. It offers an opportunity to present your ideas in light of the competition. Also, tying your introductory remarks into something a previous speaker has said allows for continuity in the evening's presentations.

9. What are the time constraints?

If you want to make an audience fidget, go beyond your allotted time. Unless your presentation can totally engulf their interest and attention, they will be finished listening when your time is up. This is even more important when there are others after you on the agenda. Be aware of how tight the schedule is.

10. Will there be any handouts or leave behinds?

Handouts can either enhance or distract from a presentation depending on how they are used. The main concern with handouts is that of the audience reading and concentrating on the handout instead of listening to what is being said. One handout idea that usually works well is a high level outline of the presentation with blank space for the listener to take notes. Another idea if a proposal or legal document is being reviewed is to project it onto a screen and review it together. This keeps the audience from reading ahead. You can always have printed copies available after the presentation for those who want them.

## **Organization**

### Outline of Ideas

A presentation should generally not try to convey more than three main points. One of the main reasons speakers fail is because they try to deliver too much information which leads to rambling. With an overabundance of information, the main point is often lost.

A general presentation outline follows:

#### Introduction

The introduction grabs the audience's attention and provides a broad overview of the body.

#### Body

The body is the bulk of the presentation. Here each point or idea is delivered with supporting information.

##### Idea One

Present support for Idea One.

##### Idea Two

Present support for Idea Two.

## Idea Three

### Present support for Idea Three

#### Conclusion

The conclusion briefly summarizes the main point or objective. It also issues the call to action.

When writing the presentation, refer to what information was gained from the ten planning questions. Be sure to incorporate this knowledge into your material. By doing so, you will strengthen your bond with the audience.

After writing the presentation, read it and ask what points may be confusing. Rewrite and clarify those gray areas. Next, ask someone else to read it and ask questions. It is best to have someone who understands your objective to critique it and also someone else who fits your audiences' demographics to read it.

Read it again, this time check for any verbiage that either may be misunderstood or that the audience is unfamiliar with. It could be terms such as amps, kvar, shear, torque, or watershed. These terms, though a common part of your vernacular, may not mean anything to your audience.

When planning the presentation, try to create ways to involve the audience. It makes them more engaged and more likely to stay focused on what is being said. However, stay away from the typical "How many of you ...." where people raise their hands. One way to involve the audience is to mingle with the audience before hand during which time you may obtain a comment that could be referenced during the presentation.

#### Practice the Delivery

Practicing your delivery accomplishes three things. One, it helps identify rough spots such as places where ideas do not flow or the visuals are not quite right. Second, it provides a rough estimate of delivery time. Third, it lessens your reliance on notes later and makes the presentation appear more relaxed and natural.

Practice your delivery until you are comfortable. Notice any words or terms you are having difficulty pronouncing. Eliminate them, if possible. If possible, speak only from an outline unless exact wording is critical. Speaking from a fully scripted speech is difficult to deliver without reading. If you must use one, be sure it is double-spaced and in large print to decrease the chance of losing your place.

Practice with a microphone if you will actually be using one in the presentation. Know what type of microphone is being used: fixed on the lectern, clip-on, or hand held. The microphone is to assist you and should not become the point of focus. Speak toward the microphone and past it. Never, never blow into a microphone to test it. Neither should you tap the microphone. Simply speak in your delivery voice and tone for testing.

Practice in front of a mirror. Watch your posture and mannerisms, especially hand and arm activity. Adjust, as necessary, if movements are distracting.

What if your practice leads to a presentation that is either way too short or too long based on the allotted time? To address this, build some flexibility into your information. You need to know what can be cut without weakening the points to be made if the presentation is too long. If it is too short, use examples to farther expand on the main points but don't go over your time allotment. Audiences are much more understanding of speakers that finish early than those that go over.

## **Delivery**

Arrive early! If possible have any audio visuals set up before the audience begins to arrive. It is inconsiderate to use presentation time for set-up. Test the microphone to decide best positioning for it.

The first minute is critical to success. The audience will decide within the first minute whether or not to engage with what is being said and listen. An ineffective first minute leads to unneeded effort later to regain the audience's attention. It all begins with the opening statement which should draw the audience in and make them feel comfortable. There are many ways to do this including: a fact of common interest (community or otherwise), strong statement of fact or presentation outcome, humor (can be risky) or a personal connection story (makes the presenter more human).

Speak with energy. A low energy level is transferred to the audience, who will quickly become disengaged and lethargic. The speaker must project with confidence and in a strong voice. "How" something is said carries, at times, more weight than "what" is said. Always speak at an appropriate rate and use inflections to emphasize points. The speaker must also avoid pause chatter such as "ah", "uhh", "you know", etc. It is better to be silent. Just remember that speaking with confidence is a good way to improve credibility.

By delivering your presentation with high energy, you avoid the one thing the audience will not forgive a speaker for - being boring. There a lot of things an audience will let slide such as starting a little late, going over a small amount, or mispronouncing a few words, but they will not tolerate a boring presentation. The main message will be lost.

Do not pace. If you have ever observed a speaker constantly moving back and forth across the front of the room, you realize that pacing is one of the most distractive behaviors a speaker can acquire. It is alright to change positions, but do not continually move back and forth.

During the presentation, remember to make eye contact with the audience. Eye contact connects you with people. As you speak, be sure to look around the audience. When a speaker focuses continually to either their right or left, the other side begins to feel less

important. The presenter needs to keep changing both who eye contact is being made with and which part of the room it is being made.

Although the first words spoken are critical, usually the audience has formed an opinion before you open your mouth. Be aware of the items that project confidence non-verbally. The first is smiling. No matter how serious the subject matter; smile. No one likes to look at a stern, scowling face. Next, as mentioned earlier, use direct eye contact. Eye contact establishes a link that communicates significance to the person. This needs to happen from the minute you enter the venue. Eye contact needs to begin way before the presentation starts. Good posture is another item that exudes confidence and a position of strength. Keep yourself erect and do not slouch or hang your head. During the presentation, never use your finger to point. A pointer should be used to direct attention to various visuals but never toward people. In order to appear more approachable, the speaker should step away from the lectern occasionally to interact with the audience. And finally, arms should be uncrossed and relaxed.

Most of all, be human. Empathize with any strong emotional feelings. People have feelings. Don't let your presentation brush that aside. People are a lot more open to change and ideas if they know you care.

## **Closure with Questions and Answers**

### The Closing

The presenter needs to close with a strong statement that summarizes the main point and, where appropriate, asks for a call to action. This is the main take away you want your audience to carry with them. In other words, if they remember nothing else this is what they should remember. It should be succinct with a benefit such as: "The upgrading of this school now will serve many generations to come and forever improve our community."

### Q & A

The questions and answer session is a great chance to clarify ideas. If in the planning phase, audience concerns were accurately identified and addressed in the presentation, then there will be few questions. However, there are a few points to consider when a question arises. After the person has asked their question, repeat the question back. This is especially important in large rooms where everyone may not have heard the question. Repeat it back prefaced by "I understand your question to be ...". This allows the question to be clarified in case the speaker heard it wrong. As a speaker, be sure to completely listen to the question. Don't start planning the answer before the question is finished. The answer should always begin with an affirming statement to the questioner. Never belittle the questioner. If possible, use the answer to reaffirm a point in the presentation. Never argue with a questioner. There will be no winner. Once in a while a questioner will make a statement masked as a question. These sometimes begin with "Isn't it true that ..." or "I believe that ...". The person is trying to make a point rather

than clarifying what the speaker said. It is best to identify some area of agreement with this type questioner, but is also important to strongly correct any untruth in their statement.

### The Finale

Once the question and answer session is over, do not abruptly end with such statements as “If there are no more questions, that concludes our presentation.” There always needs to be a closing statement, if only one or two sentences. The closing statement should either restate your main point or reiterate your call to action.

## **Conclusion**

Speaking skills, like personal fitness, only improve with a workout. Though much can be learned from study and observation, real growth comes from getting in front of audiences and presenting. With each additional presentation, your skills and confidence will increase. It is best to take every opportunity to speak and improve yourself. Great presentation skills are a highly marketable personal asset that can serve you well throughout your life.

## Presentation Preparation Work Sheet

Answer the following questions:

1. Will the presentation be delivered internally or externally?
2. Should the engineer actually do the presentation?
3. What is the objective of the presentation?
4. Who is the audience?
5. Are there known or hidden emotional issues?
6. Will audio visuals be used?
7. Are there any problems with the location?
8. Are other speakers on the agenda?
9. What are the time constraints?
10. Will there be any handouts or leave behinds?

Outline of presentation:

### Introduction

- Attention getter
- Overview of presentation

### Body

- Idea One
  - Support for Idea One.
- Idea Two
  - Support for Idea Two.
- Idea Three
  - Support for Idea Three

### Conclusion

- Summarize the main point or objective
- Issue the call to action.