

PC 512

Technical Writing and Communication Skills

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A Presentation = A Lecture +

- Slide-show/ Hand-outs/ Posters /Audio-visual Demo
- Effort to secure a predetermined response

Why Presentations What

- To announce your **invention/ research work**
- To propose and get money for **a new technique/ system/ project/ idea**
- To educate others **on your subject/ research contribution/ views**
- To sell/ advertise **your products/ ideas**
- To get **a new job/ promotion**
- To reach **out**

Various Types of Technical Presentations to Support

- Examinations
- Project Review/ Performance Review
- Getting a new project/ grant
- Publicity/ Ad/ Selling
- Teaching
- Outreaching/ Interaction - Conference
- Learning

Presentations vs. Writing

- Immediate
- Real time
- Face to Face
- Long Term
- Archival
- Non Contact

1. Know your AUDIENCE

- Professors
- Supervisors/ managers
- Customers
- Co-workers
- Conference Attendees

2. Words uttered once cannot be taken back

3. (**SUPERVISED**)

PRACTICE

MAKES
PERFECT

Make a Video/Screen Recording and Watch it Many times with Friends and Family

4. Take time to prepare your Slides

Number of Slides = Number of Minutes Allowed

5. HAVE A THOROUGH AND DEEP **UNDERSTANDING** OF YOUR SUBJECT

- Poor understanding → bad reports & seminars

6. Do NOT talk about
what you do not know
or
what you have not done

7. Technical Presentation

= *Show Business*

- Make it interesting
- Be familiar with the room and a.v. set-up
- Look at your audience
- Use your hands or forget them
- Use Voice control
- Avoid vocal and gesture mannerisms
- Be RELAXED, Be SINCERE

7. Technical Presentation

~ *Show Business*

- Observe the time limit
- Dress Neatly and Decently
- Time manage topics
- Jokes/anecdotes/Humor
 - only if it comes naturally and is not offensive

Technical Presentation

8. Be
Enthusiastic,
Show
Enthusiasm

9. If You are
the Speaker
You are in
COMMAND

10. Be POLITE and Tactful

A Presentation

- Descriptive Title
- Introduction
 - Tell them what are you going to tell them
- Discussion
 - Tell them
- Conclusion
 - Tell them what you told them

Focus of Your Presentation for Thesis/Paper

- Your Problem
- Your Work
- Your Contributions/Innovations
- Advantages from Your Work

Audio-Visual Aids

- Keep it Simple
- “Less is More” - audience attention span is short
- 1 picture = 1000 words
- 1 minute/ slide
- Equation/ Maths – Be Careful

Fresnel Diffraction

A Bad Slide with an Equation
Having unexplained symbols

$$U(x, y, z) = U(x_0, y_0, 0) * \frac{e^{-j2\pi z/\lambda}}{j\lambda z} e^{\frac{j\pi}{\lambda z}[(x-x_0)^2 + (y-y_0)^2]}$$

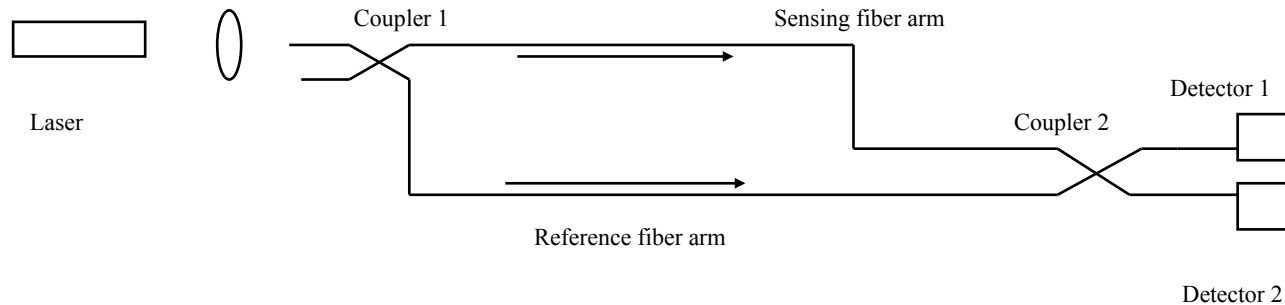
Audio-Visual Aids

- Slide = Cue-card
- Lettering large enough
- Lines thick enough
- Use colors/animation/ Multimedia whenever possible

An Example of a
Bad Slide
Having a lot of
Text in Small Font
And a small figure.

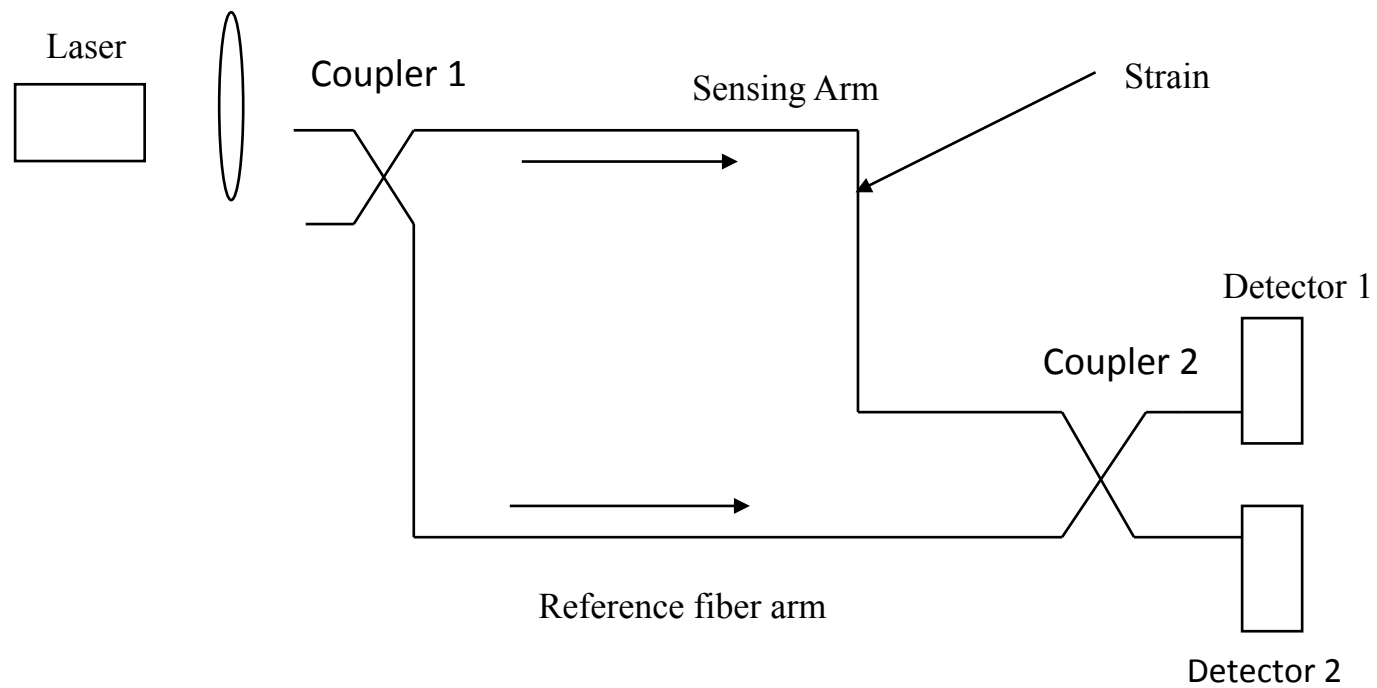
Mach-Zehnder interferometric sensor

One of the most sensitive arrangements of a fiber optic sensor is the Mach-Zehnder interferometric sensor. Light from a laser is passed through a 3 dB fiber optic coupler which splits the beam equally into two single mode fiber arms. After traversing the fiber lengths the two fibers form inputs to another 3dB coupler which helps in superimposing the two beams. The two outputs of the output coupler are detected and processed. One of the arms is the sensing arm and is usually coated with a material that is sensitive to the parameter of interest. The other arm, called the reference arm, is shielded from the external perturbation. When an external parameter acts on the sensor it alters the phase of the light propagating through the sensing arm by changing the refractive index and/or the length of the sensing arm. At the same time the light in the reference arm is shielded from the external perturbation. Thus the power exiting from the two output arms will be determined by the phase difference between the two arms.



It can be shown that the intensity of light incident on detector 1 is

A Fiber Optic Mach-Zehnder Interferometer based Strain Sensor



Professionalism

- Read papers, attend talks, conferences for important topics, style, better talk, presentation and for knowing about your topic
- Join a professional society - IEEE, ACM... to know current trends, new developments

Summary

- Technical Presentations
 - What
 - Why
 - Guidelines, Tips
 - Audiovisuals

References

- Watch the short videos <https://youtu.be/eTJKcM-amSE> and https://youtu.be/qbq4_Swj0Gg for a few more tips.