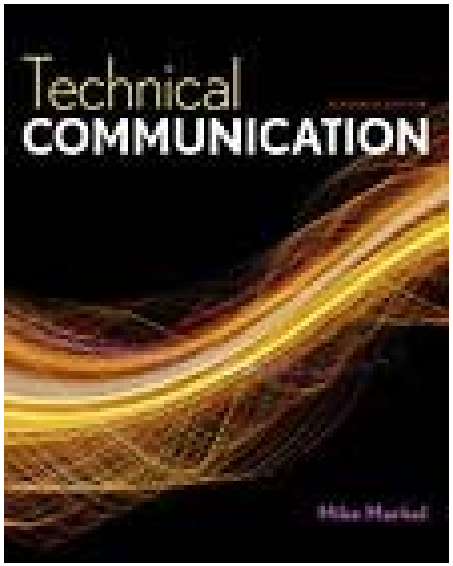
Fall 2021 VE496
Lecture notes
Week 1

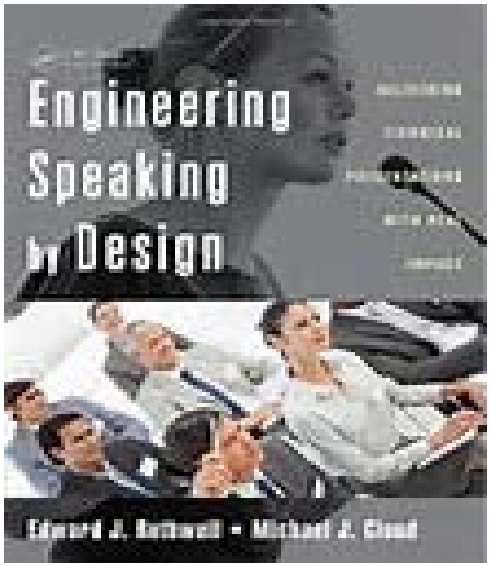
Class Outline:

- Syllabus
- Technical Communication overview
- Big-picture awareness
- Contextual & process skills

Course Readings will be available on Canvas:

- **E-copies** of various **printed sources**
- **Short videos** will supplement lectures on specific topics





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In perspective:

VG100 TC is integrated into engineering

VE300 Stand-alone TC

VE496 Advanced Technical Communication
VE450 capstone
Major **D**esign **E**xperience courses

JOINT INSTITUTE
交大密西根学院

Fall 2021
VE496 Advanced Technical Communication
WED 12:10-13:50 (+ FRI 14:00-15:40 Week 8, 9 10)
Dong Zhong Yuan E2-203

Irene Wei. Ph.D.
Long Bin Building 435
Wed 14:30-16:30 or by appointment
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Or text me privately on Feishu

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Private message on Feishu
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Course Description:

Engineering graduates require a wide range of skills to function and succeed. The Accreditation Board for Engineering and Technology (ABET) recognizes that communication skills are a fundamental engineering skill.

In VE496 we will cover 3 main topics in technical communication:

1. Different kinds of technical communication (audience and purpose)
2. Technical report types and purposes (form and content)
3. Advanced presentation skills (slides and delivery)

Class format includes lecture, discussion, individual practice and group activities.

Selected readings from the following texts:

1. *Practical Strategies for Technical Communication* by Mark Markel & Stuart Selber
2. *Engineering Speaking by Design*, by E. Rothwell & M. Cloud
3. *Resonate: Present Visual Stories that Transform Audiences*, by Nancy Durate
4. *Storytelling with Data*, by Cole N. Knaflic
5. Other materials on related topics

Course content and activities aim to help you:

- Refresh already acquired technical communication skills in VG100 and VE300
- Expand your technical communication knowledge base by
- Understand technical writing requirements, including organizational strategies & formats
- Improve presentation skills (design and delivery)

After taking this course, you should be able to:

- Communicate with greater appreciation for contextual and process skills
- Explain how different parts of a technical report cohere to fulfill a specific purpose
- Visualize information and data with greater intention using the appropriate graphs
- Deliver a presentation with effective slides

VG100: Introduction to Engineering

Technical skill sets

– the use of scientific principles to investigate a problem

– Develop & implement a solution.

Engineering mindsets

- Learn to think, work & communicate like engineers

- Understand standards of technical communication by practicing, making mistakes, and responding to feedback

Six Engineering Habits of Mind:

1. System thinking
2. Problem finding
3. Visualizing
4. Problem-solving
5. Improving
6. Adapting

1. **System thinking:**
- see whole systems & parts (how they relate)
- recognize interdependencies

2. **Problem finding:**
- clarify needs

3. **Visualizing**
- move from abstract to concrete

4. **Problem solving**
- implement, test, analyze

5. **Improving**
- redesign & retest

6. **Adapting**
- respond to user feedback

Technical Communication as a series of ***actions***

✓ **Determine** your **purpose.**

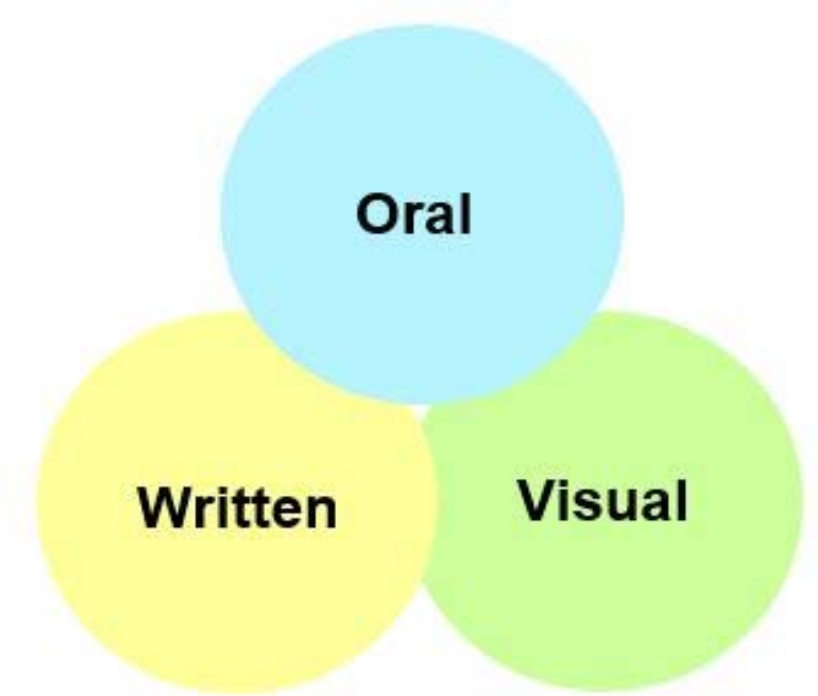
✓ **Assess** your **audience** needs.

✓ **Consider** the **context** of your communicative act

- **Establish** the scope of your coverage on a topic
- **Research** in relevant areas
- **Organize** your ideas
- **Select** the appropriate medium

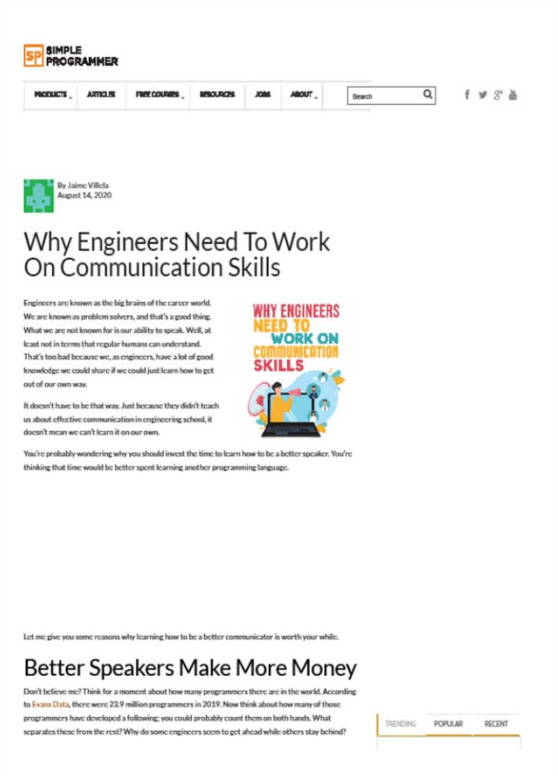
Multi-modality

Technical communication is a design process using words, images, and voice.



Week 1 reading & homework:

Why Engineers Need to Work on Their Communication Skills



SIMPLE PROGRAMMER

PRODUCTS ARTICLES FREE COURSES RESOURCES JOBS ABOUT Search

By Jaime Villela
August 14, 2020

Why Engineers Need To Work On Communication Skills

Engineers are known as the big brains of the career world. We are known as problem solvers, and that's a good thing. What we are not known for is our ability to speak. Well, at least not in terms that regular humans can understand. That's too bad because we, as engineers, have a lot of good knowledge we could share if we could just learn how to get out of our own way.

It doesn't have to be that way. Just because they didn't teach us about effective communication in engineering school, it doesn't mean we can't learn it on our own.

You're probably wondering why you should invest the time to learn how to be a better speaker. You're thinking that time would be better spent learning another programming language.

Let me give you some reasons why learning how to be a better communicator is worth your while.

Better Speakers Make More Money

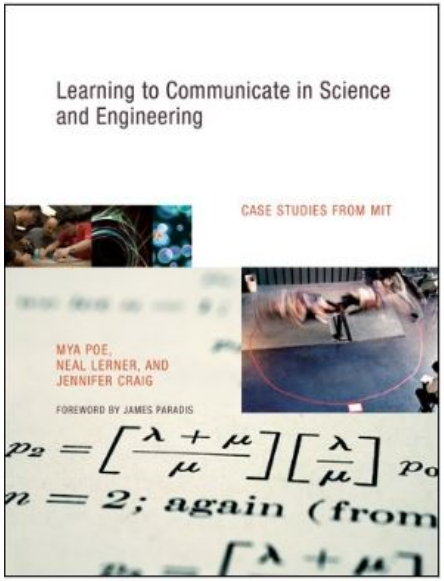
Don't believe me? Think for a moment about how many programmers there are in the world. According to Evans Data, there were 23.9 million programmers in 2019. Now think about how many of those programmers have developed a following; you could probably count them on both hands. What separates these from the rest? Why do some engineers seem to get ahead while others stay behind?

TRENDING POPULAR RECENT

"Engineers who don't write well end up working for engineers who do write well."

Learning to Communicate in Science and Engineering: Case Studies from MIT

by Mya Poe, Neal Lerner, and Jennifer Craig



Why communicate?

What is your purpose or what do you want to achieve with your audience?

- To build *common grounds of understanding* with audience
- To help them learn about a subject or problem
- To persuade them to see a problem through your eyes and accept your solution for it
- To motivate them to take action

Types of Technical Communication:

Oral: Job interviews, speeches, presentations, meetings

Written: technical reports, proposals, research papers, resumes/CV, job applications, etc.

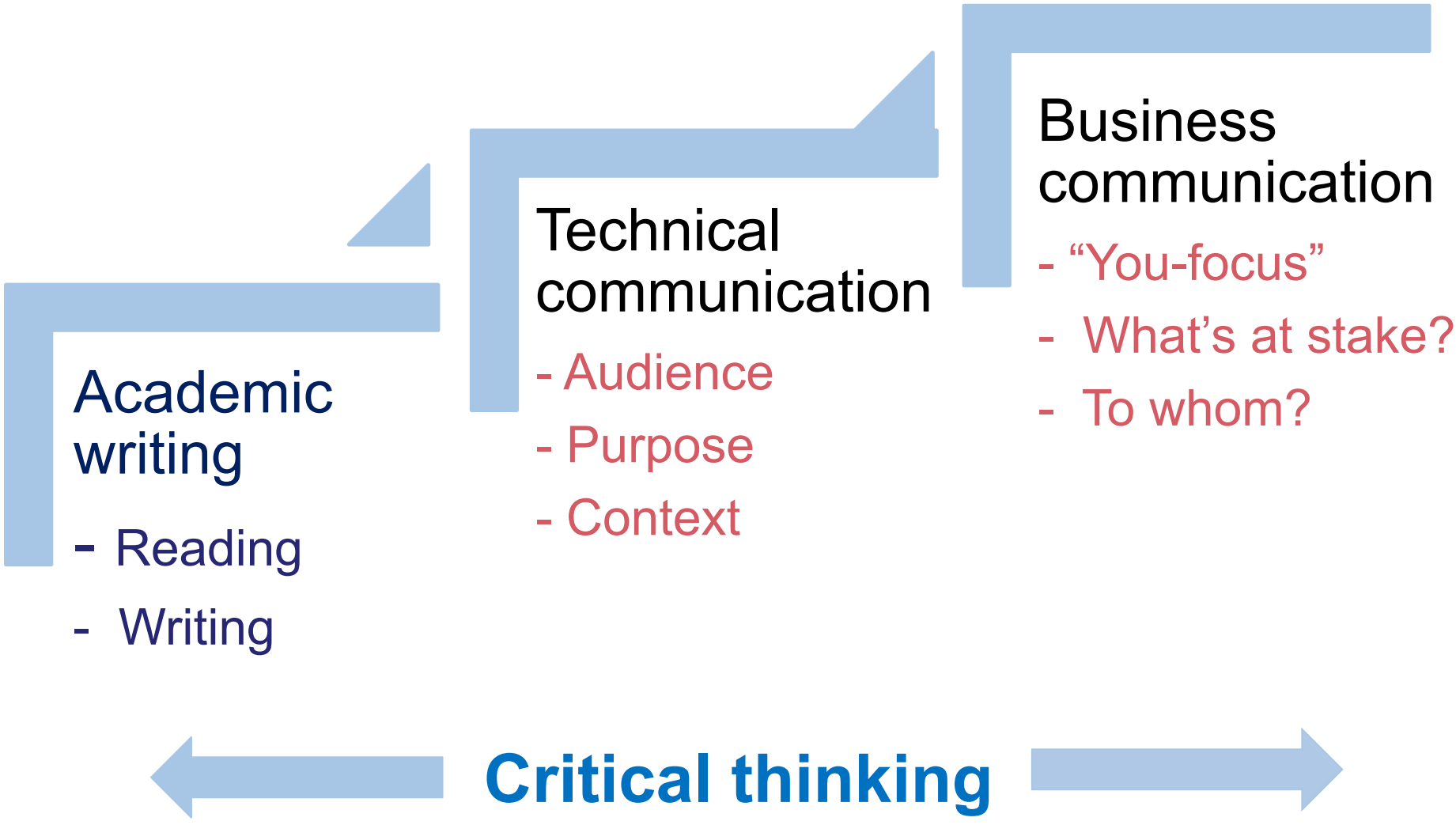
Electronic: Emails, text messages, videoconferencing, podcasts, blogs

Visual: Symbols, icons, tables, figures, drawings, illustration, photographs, video, etc.

Profiling your audience:

- Who is your audience?
- What are your audience's needs in relation to the subject?

Professional communication



Technical Communication:

- Interactive & adaptable
- Reader centered
- Reliant on teamwork
- Visual
- Bound ethically & legally
- International & cross-cultural

Topics of interests:

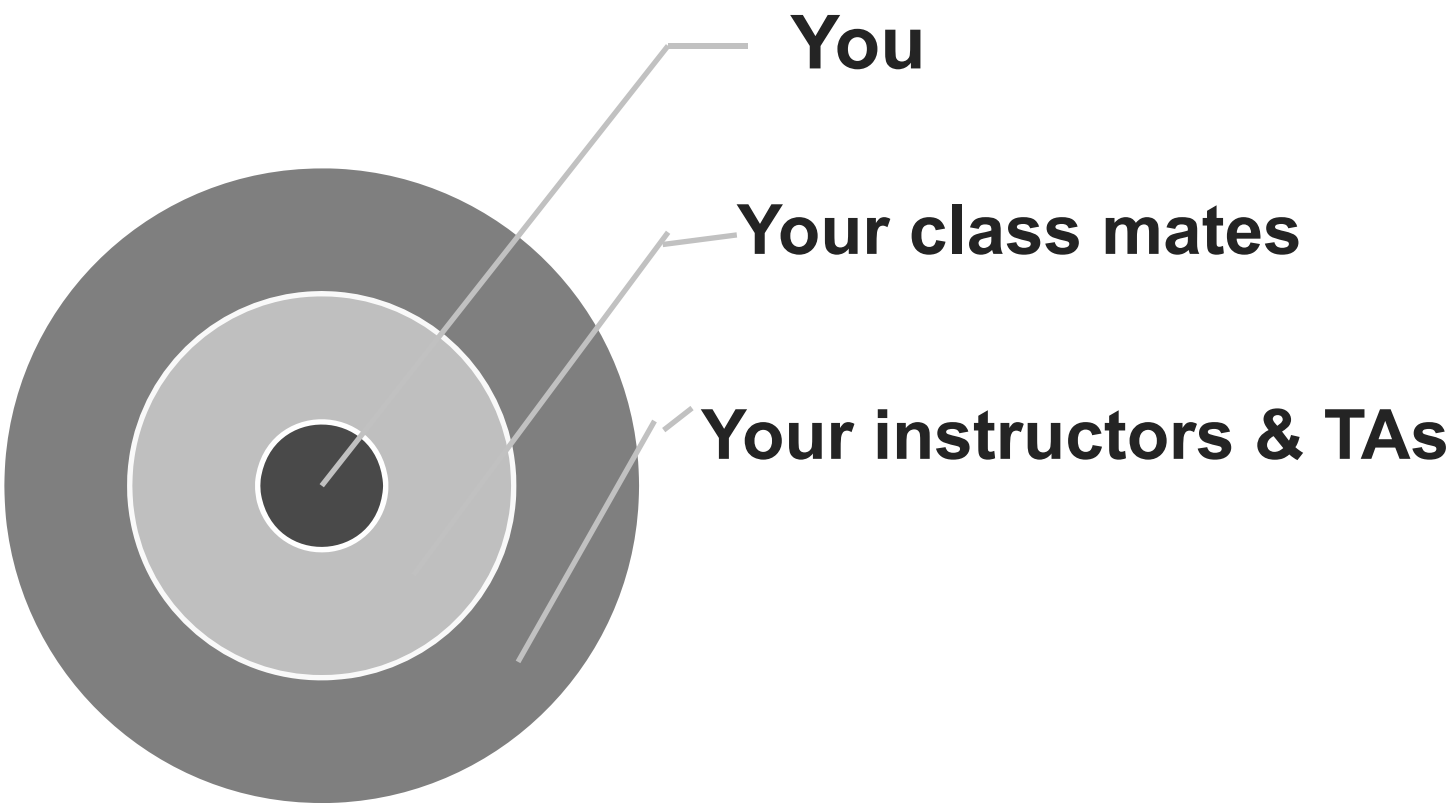
- Information design
- Data visualization
- Statistical graphics

✓ **Understand-*ability***

✓ **Use-*ability***

Technical writer **= *enabler***

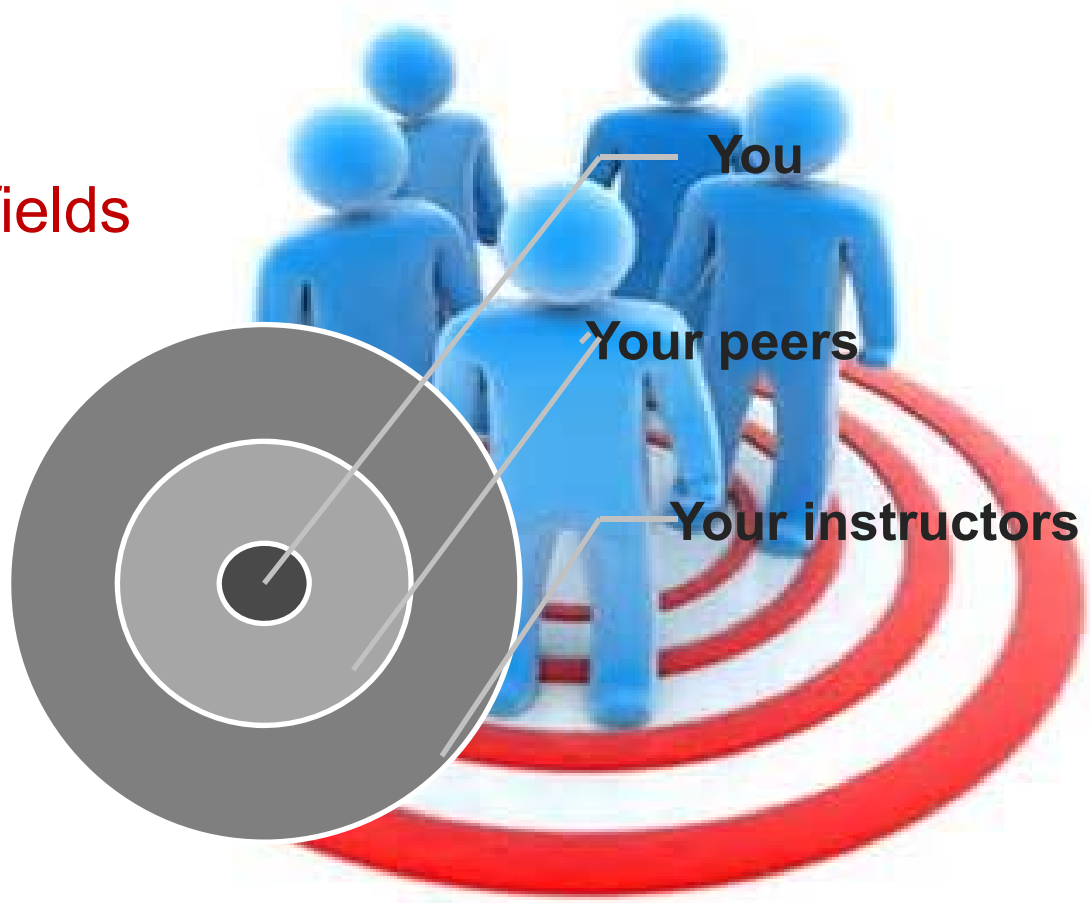
When life is easy, your audience looks like this:



For Tech Comm → Wider audiences:

- Clients
- customers
- Marketing
- Sales
- Engineers in different fields
- Government

- The public
- People **outside**
  Science
  Technology,
  Engineering
  Math (**STEM**)



The importance of
Contextual and ***Process*** skills

Contextual skills

The *circumstances* that form the setting for an event, statement, or idea

The parts of something written or spoken that immediately precede and follow a word or passage and clarify its meaning
.

“Can't see the forest for the trees”

Looking at things one at a time, you might not realize that a branch of separate "trees" go together to make a "forest."

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All images taken from http://cn.bing.com/images/search

Today's engineering students will spend more time explaining technology to different stakeholders.

- Consumers
- Business partners
- Governments
- Legislators
- Lawyers/judges
- Environmentalists

VE450 Capstone Final report

Cover page
Abstract
Table of contents
Introduction

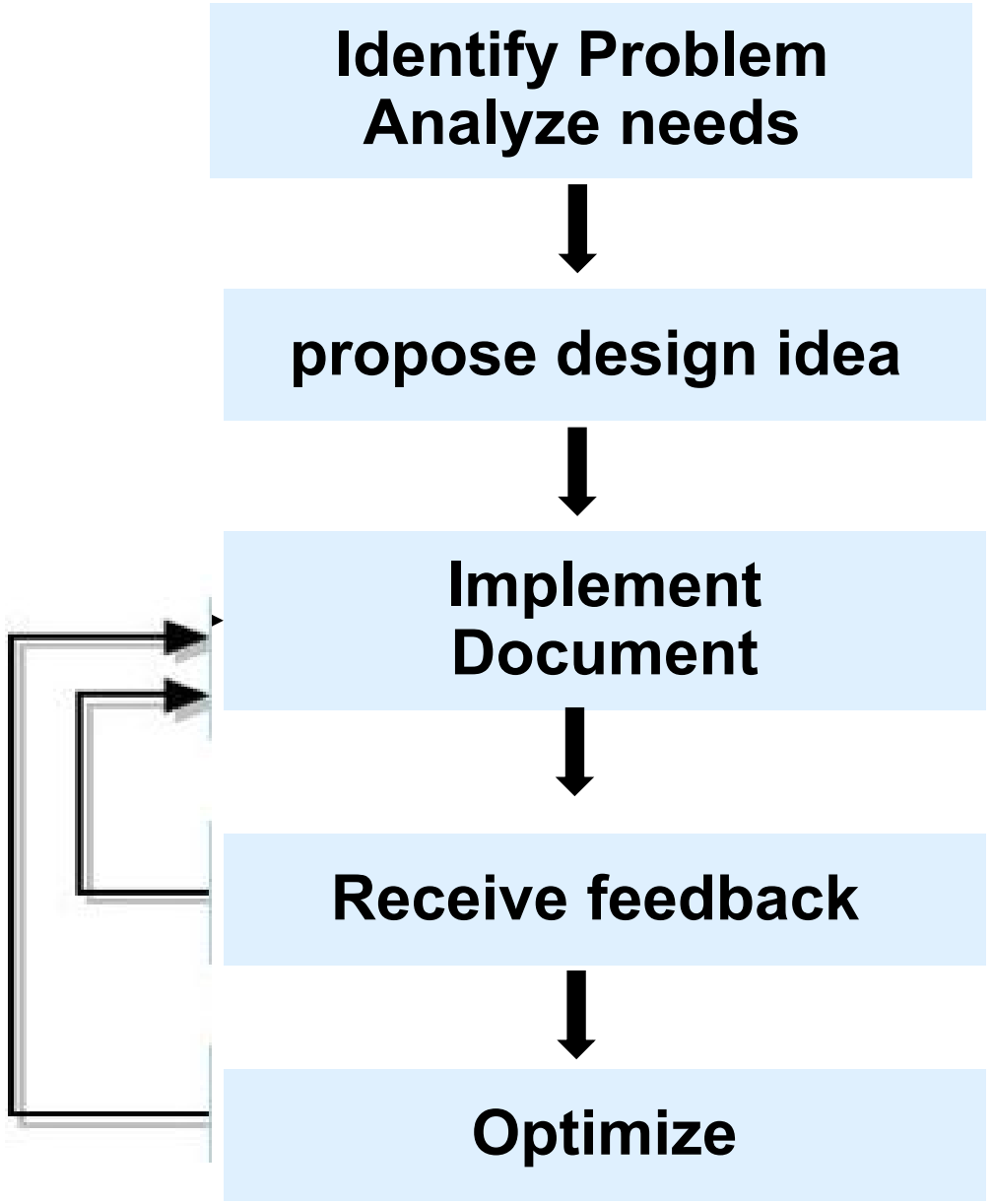
Front matter

Concept generation
Concept description
Parameter analysis
Final design
Manufacturing plan
Test results
Discussion
Recommendations
Conclusions

Diagrams, figures
in **the body of report**
to support text

Acknowledgment
References
Appendix

Back matter



Engineering work flow

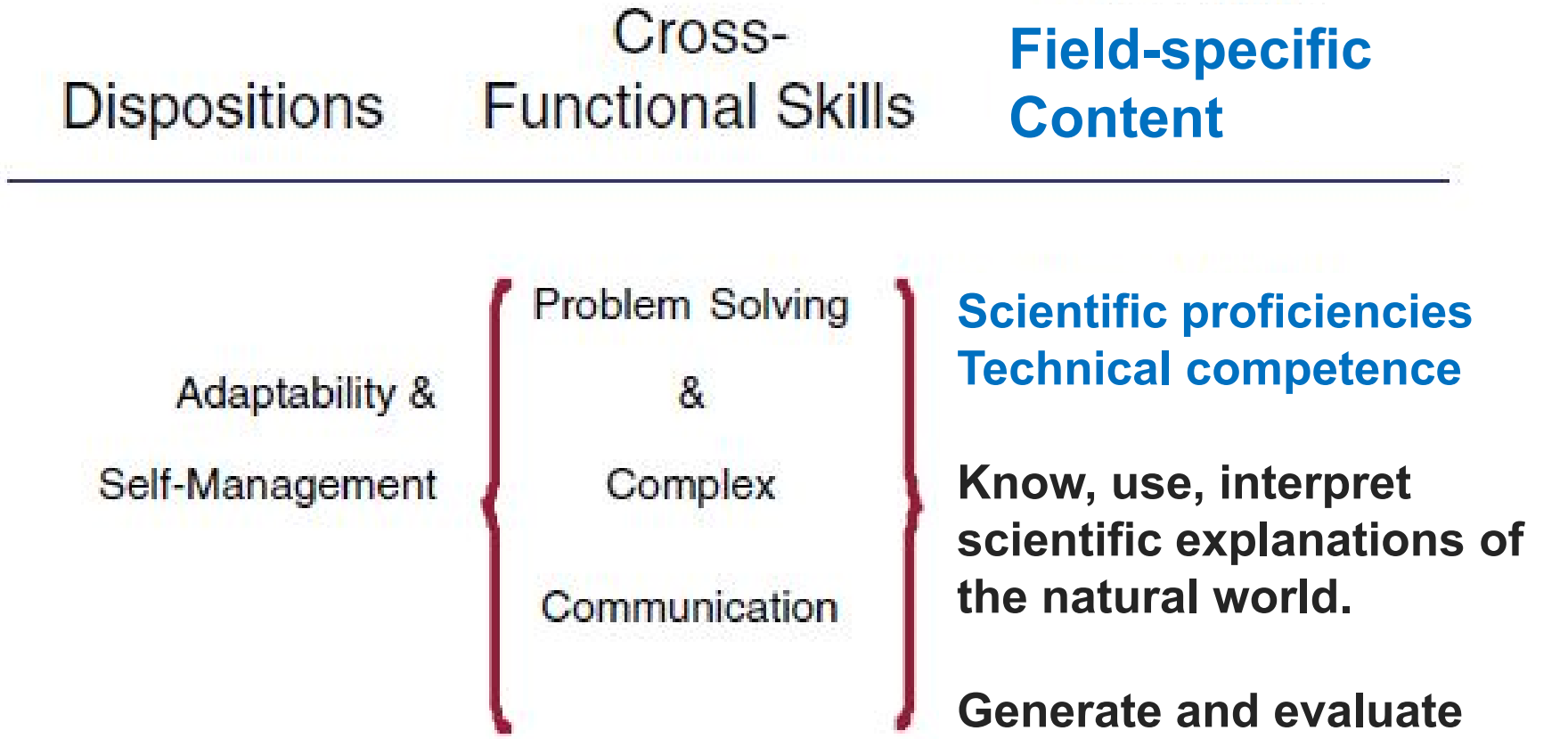
Design review meetings in school or at work

Process skills

A series of actions or steps taken in order to achieve a particular end.

Skilled at giving **instructions**

- Defining terms
- Describing processes, mechanisms



SOURCE: Ruiz-Primo (2009).

Your post graduation plans?

- Graduate school
- Internship
- Job search
- Gap year

Homework for week 1

Thank you!

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