

“Professional Skills”

- Professional Skills = non-technical skills useful in your career. E.g., technical writing, public speaking, project management, and more
- Resources
 - Mason’s website for writing and presenting tips
 - <http://www.egr.msu.edu/~mason/writing.htm>
 - my tips and many links to other resources
- Outline
 - Plagiarism
 - Presentations
 - Dos and Don’ts
 - Presentation Organization
 - Slide Organization
 - Technical Writing
 - General Dos and Don’ts
 - Paper Organization
 - Introduction Sections
 - References
 - Common Mistakes
 - Tricky English

Plagiarism

- **Plagiarize¹:**

- to steal and pass off (the ideas or words of another) as one's own
- use (another's production) without crediting the source
- to commit literary theft
- present as new and original an idea or product derived from an existing source

- **When should you consider potential plagiarism?**

- professional paper?
- conference presentation?
- class report?
- class presentation?
- internal memo?
- letter to a friend?

1. Merriam-Webster Online Dictionary, <http://www.m-w.com/dictionary/>

Plagiarism II

- **Things that are allowed**

- come up with ideas/statements all on your own
- quote another source, placing the statement in quotes and giving credit to the source using a proper reference citation
- borrow a published idea/statement, work it in with your own ideas/thoughts and generate a new statement that is independent of the original work (in this case you do not need to reference it)
- anything else is plagiarism

- **Things that are not allowed**

- take statements, data, photos, etc. from any source without giving credit to the original source and including a full reference citation
 - this includes taking images off the web, even if they are open source

- **Open source info/figures from the web**

- if you are SURE it is open source (no copyright) you CAN use it in your papers/reports, **but you still have to reference it**
 - open source means you can use it without paying copyright fees, but it does not mean you don't have to cite the source
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Presentation: Dos and Don'ts

- Do
 - Relax!
 - it's a presentation, not a trial
 - Prepare
 - organize thoughts and slides to tell a good story
 - make sure your material matches the time limit
 - Practice
 - it will help you feel comfortable and relax
 - Try to “tell a story” rather than memorizing a speech
 - suggestion: memorize your introduction and conclusion but just “tell the story” for the rest of your presentation
 - Speak at a normal pace
 - when uncomfortable, most people speak too fast
 - Speak to the audience, not to the computer/screen

Presentation: Dos and Don'ts

- Don't

- Worry or feel embarrassed.
 - audience is listening to you for a reason
 - audience is not out to get you!
- Waste the audience's time
 - be prepared
- Get stuck trying to describe a concept/design that is too complex for the time you have; simplify, show only key points
- Overdo animation/highlighting; avoid overusing comic relief
 - it's a professional presentation not a circus
- Make fun of your presentation or of yourself
- Avoid "Umm"
 - when you are not sure what to say, just keep your mouth closed
- Try to make up answers to questions you can't answer
 - describe relevant information that you do know
 - suggest meeting after presentation to discuss in more detail

Bullet Capitalization

- First word only
- All Major Words
- Not A mix of Both!

Presentation Organization

- Always consider the perspective of the audience
 - your job is to enlighten/teach/inform/motivate your audience
 - presentations are for the audience, not the speaker
 - make sure they can always follow you & engage them
 - don't waste their time: **examples?**
- Address the following issues for the audience
 - Why should they care?
 - motivation for your work/presentation
 - the problem that is being addressed & **value in addressing it**
 - What is your approach?
 - typically, also highlight alternative approaches and show benefit of yours
 - What are your goals?
 - What did you do? (bulk of presentation)
 - step by step discussion of what you have done to solve the problem
 - What were your results?
 - results from your efforts
 - **relevance/impact of these results**



**important
stuff
here!**

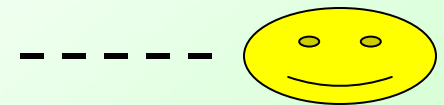
Slide Formatting

24 pt Arial
20 pt Arial
18 pt Arial
16 pt Arial
14 pt Arial

- Text
 - use minimal text; bullet-style comments
 - text is for 1) helping audience follow presentation or 2) reporting specific detail
 - keep text large enough to read
 - 14 pt font –probably as small as you should ever go
 - don't type everything you want to say into a slide
 - you can add speaker notes to each slide at the bottom in PowerPoint
 - use enough text to remind yourself of flow plan & show important data
- Figures
 - figures are more appealing to the audience than lots of text
 - good figures can replace a lot of text
 - avoid bad figures: hard to see/read or too complex for point you are trying to make
- Difficult Concepts
 - animation is a good way to quickly describe a complex point/concept
- Highlighting
 - use colored text, circles, arrows, etc. to help stress important points

Slide Organization

- Each slide should have one main theme/point
 - slide title should reflect that theme/point
- Main bullets should address the slide's main theme
 - if they don't, they probably need to be on another/different slide
- Sub-bullets describe bullets they are under or show results of that bullet
 - outlines are supposed to have 2+ heading at any given level
 - not true for bullets/presentations
 - a single bullet is OK
- Figures
 - organize onto slide to fill white space
 - link by alignment, arrow, etc. to appropriate bullet
 - include text labels of main points in figure
 - or highlight important data from figure in slide text
 - (if appropriate) include figure captions
 - no figure numbers needed in presentations



Professional Papers

General Dos and Don'ts

• **Dos**

- know your audience
 - become familiar with the topics and level of detail for journal/conf.
- check for specifications or templates
 - formatting requirements, paper length, etc.
- double check the literature for recent papers related to your work
- follow guidelines of professional writing

• **Don'ts**

- plagiarize
- submit a paper until the data/results are ready
- submit papers with English error, esp. misspellings!
 - always have someone review to find typos

TRANS-JOUR-IEEE-template.doc has a TON of useful information and suggestions

Professional Writing Don'ts

- **Don't**

- use slang phrases (cool, over the top, tad bit, etc.)
- use contractions (don't, won't, can't, we'd, let's, etc.)
- begin sentences with conjunctions (And, But, Or)
 - make compound sentences or use Also, However, Alternatively
- avoid first & second person
 - "Next we plugged in the scope" → "Next, the scope was plugged in"
 - "As you can see" → "As one can see"
 - I personally try to use these only to clarify references to our work
 - "However, this problem is overcome in our new circuit"
- avoid non-specific subjects
 - "There will be a button to push on the window that opens."
 - "The button to push will be on the window that opens."
- avoid possessive case
 - "the chip's features" → "the features of the chip"

References (IEEE-style)

- What to cite
 - 3 main reasons for references
 - outlining the history of a topic/concept
 - citing comparisons/alternatives to your work
 - citing source of idea/design/technique used or adapted in your work
 - Never copy text from a paper/book, unless you specifically quote (using “xxx”) the work and reference it. It is best to always express the idea of the reference without quoting, but in either case, you **MUST** cite/reference the source of the information
- When to cite
 - within the sentence (or at end) that you introduce the idea being cited
 - afterward, you can refer to this idea without reference
 - but if you introduce a new idea from the same source, you should cite the source again

References II (IEEE-style)

- **Which reference to cite**

- Always provide the most available reference; if you want to reference a Thesis, it's better to reference the material from a conference/journal paper if it was reported outside of the thesis. Also, it's better to have a journal reference than a conference reference since journals are more available to the public.

- **How to cite multiple references**

- If a new idea was first reported in ref X and later cited in ref Y, you should either cite ref X or cite both sources. Never cite a secondary source (one that itself cited an older source) unless that secondary source changed things in such a way to make their idea unique compared to the original source.

- **Other reference questions?**

- Papers that have not been published should be cited as "unpublished"
- Papers that have been submitted for publication should be cited as "submitted for publication"
- Papers that have been accepted for publication, but not yet specified for an issue should be cited as "to be published"

References III (IEEE-style)

- **How to format references**

- list all authors
 - don't use et. al. unless there are more than 6 authors
- place the title of the paper in quotations
 - include a comma at the end, before the ending quotation mark
- italicize journal or conference names
- italicize book titles (this is IEEE format, but sometimes you'll find them underlined)
- always include volumes and issue number
 - these are always available for IEEE journals.
- always include pages and dates
- **always end with a period**

- **Examples**

- A. Mason, N. Yazdi, K. Najafi, and K. D. Wise, "A Low-Power Wireless Microinstrumentation System for Environmental Monitoring," *Digest, Int. Conf. on Sensors and Actuators (Transducers' 95)*, Stockholm Sweden, pp. 107-110, June 1995.
- N. Yazdi, A. Mason, K. Najafi, and K. D. Wise, "A Generic Interface Circuit for Capacitive Sensors in Low-Power Multi-Parameter Microsystems," *Sensors and Actuators*, vol. 84, pp. 351-361, 2000.

Fig/Table/Eqn Formatting (IEEE)

- Where to place & cite figures
 - Figures should always come AFTER (top to bottom, left to right) they are introduced in the text
 - When possible, group figures together at top/bottom of the page or in one column
 - try not to place small bits of text between figures
- Figure Captions
 - Figure #. Description caption.
 - placed below the figure
 - can replace '.' with ':'
 - can replace Figure with Fig., but be consistent throughout paper
 - always end in a period, even if caption is not a proper sentence
 - always left justified (be careful with text boxes)
- Other Figure Issues
 - when referring to a specific figure, always capitalize Figure

these are rules for IEEE technical papers; not requirements for your ECE445 design project reports, but good guidelines to follow

Fig/Table/Eqn Formatting (IEEE)

- Where to Place Tables
 - same rules as figures
- Table Captions
 - TABLE RM#. DESCRIPTIVE CAPTION
 - captions always ABOVE the table
 - font format is 'small caps'
 - table number is roman numerals (I, II, IV, etc.)
 - no period at the end
 - center justification
 - often caption is on a line under the TABLE RM#
- Equations
 - centered, with (#) right justified
 - introduce with phrase such as "as given by"
 - referenced by (#) – not eqn. # or eqn (#)
 - do not refer to equations that have yet to be presented
 - always define EVERY variable before or after the equation
 - example: "where K is..." Do not indent the "where" paragraph

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Common English Mistakes

- Conjunctions

- great for connecting compound sentences, but DO NOT START A SENTENCE with *and*, *but* & *or*
 - it's improper for technical writing
- Example
 - "The circuit preformed well. And the noise level was low."
 - 😊 • "The circuit preformed well, and the noise level was low."
 - 😊 • "The circuit performed well. In addition, the noise level was low."

- Hyphenation

- some word combinations are hyphenated only when used as adjectives
- when used as a noun they are not hyphenated
- Example: *an on-chip sensor is implemented on chip*
- Do not hyphenate after the word **highly**
 - Example: *a highly linear response from a high-performance amplifier*

Common English Mistakes II

- Tricky Words

- like vs. such as

- Most often, you should replace the word *like* with *such as*.
 - If it sounds correct when you read it with 'such as' then use *such as*.

- because vs. since

- The word *since* is used only when time-dependent information is provided
 - e.g., "Since I was a boy, I liked playing games."
 - Do not use it unless time is involved.
 - "Since I like fruit, I'll eat a banana," is not correct. Here, you should use *because*.
 - Always use *because* unless the result is time dependent on the phrase.

- complement vs. compliment

- complement = to match; got together
 - compliment = admiring comment; flattering remark

- principle vs. principal

- principle = standard; belief; rule or law
 - principal = most important; chief; primary

- verses vs. versus

- verses = units of a poem, song, etc.
 - versus = opposed to
-

Outline for “How To Speak” Video

- How to Start
 - (don't Joke)
 - Promise
 - Menu
- The Big Four
 - Cycle (repeat)
 - Verbal punctuation
 - Near miss
 - Ask question
- Time & Place
 - 10 or 11am
 - Well lit
 - Full
- The Blackboard
 - Draw
 - List
 - Target
- Overheads
- Props
- Style
 - (don't Copy)
 - Adapt
 - Eccentric
 - Story
- How to End
 - (don't Thank)
 - Joke
 - Deliver (remind of promise)
 - Ask for Questions
 - Salute
- Questions
 - Ask a question
 - Non-verbal communication
 - Conversation vs. lecture
 - Use of slides
 - Being nervous