Technical Writing
Chapter 1: Definition of Technical Communication

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A General Definition of Technical Communication
What is Technical Communication?

- Technical writing is about the kind of writing that "aims to get work done, to change people by changing the way they do things".
- Authors use this kind of writing "to empower readers by preparing them for and moving them toward effective action".

A General Definition of Technical Communication
What Counts as Technical Communication?

- Technical communication is any item of communication that includes one or more of these characteristics:
  - Communicating *about technical or specialized topics*, such as computer applications.
  - Communicating *by using technology*, such as web pages, social media sites, etc.
  - Providing *instructions about how to do something*.

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A General Definition of Technical Communication
Who creates Technical Communication?

- Two different types of writers:
  - Technical communication professionals: hired to write the content that companies need to explain their products, often to customers.
  - Professionals who write as a part of their jobs: write about issues in their specific field or workspace.

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Major Traits of Technical Communication

Technical Communication is Audience Centered

- In order to create a document in which readers can find, understand, and use content appropriately, writers need to understand how writing affects readers and the various ways in which readers approach written content. Audience centered means that technical communication:
  - Has definite purposes
  - Enables readers to act
  - Enhances relationships
  - Occurs within a community
  - Is appropriate
  - Is interactive

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Major Traits of Technical Communication

Technical Communication Has Definite Purposes

- Technical writers enable their readers to act in 3 ways: by **informing**, by instructing, and by persuading.
  - To carry out job responsibilities, people must supply or receive information constantly.
    - They need to know or explain the scheduled time for a meeting, the physical description of a new machine, the steps in a process, etc.

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Major Traits of Technical Communication

Technical Communication Has Definite Purposes

- Technical writers enable their readers to act in 3 ways: by informing, by **instructing**, and by persuading.
  - Writers instruct when they give readers directions for using equipment and for performing duties.
    - Writing enables consumers to use their new purchase.
    - Writing tells medical personnel exactly what to do when a patient has a heart attack.

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Major Traits of Technical Communication

Technical Communication Has Definite Purposes

- Technical writers enable their readers to act in 3 ways: by informing, by instructing, and by **persuading**.
  - Writers persuade readers with cogent reasons to follow a particular course of action.
    - One writer, for example, persuades readers to accept site A, not site B for a factory.
    - Another writer describes a bottleneck problem in a production process in order to persuade readers to implement a particular solution.

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Major Traits of Technical Communication

Technical Communication Enables Readers to Act

- Technical writing is the practical writing that people do as a part of their job.
  - It is writing that authors use to empower readers by preparing them for and moving them toward effective action.
  - Effective action: readers act in a way that satisfies their needs.
  - Example 1: you need an instruction manual to assemble a table delivered in pieces.
  - Example 2: "site reports" help a manager to decide whether or not to continue manufacturing a certain product.

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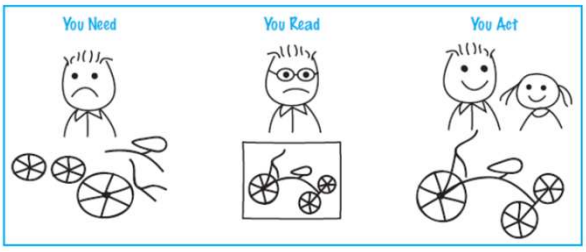

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Major Traits of Technical Communication

Technical Communication Enhances Relationships

- Technical communication enhances relationships between people. How?
  - Example 1: A father assembling a tricycle for a birthday present.
    - Relationship between the father and the child.
  - Example 2: An engineer working on the process of upgrading a company's computer network.
    - Relationship between employees.

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Major Traits of Technical Communication

Technical Communication Occurs Within a Community

- Action occurs with a community, a loosely or closely connected group of people with a common interest.
- Belonging to a community affects the way members expect one another to act.
- When people join a community, they learn how to act.
  - Understanding how to present your material so that readers get the information that they need in the form that they expected.

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Major Traits of Technical Communication

Technical Communication Is Appropriate

- The material needed in the situation is present.
  - Wording must be more than clear and well structured.
  - In a user manual, if readers can't find instructions they need – then the manual is useless, or inappropriate.
- The material is socially acceptable (*social appropriateness*).
  - Avoiding the scolder / scoldee relationship.

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Major Traits of Technical Communication

Technical Communication Is Interactive

- Readers read the words in a document, but they also apply what they know or believe from past experiences.
- As words and experiences interact, the reader in effect recreates the report so that it means something special to him or her, and that something may not be exactly what the writer intended.
  - Example: a company's website receiving fewer hits in the past few months (read from page 11).

Communication does not occur until the reader recreated the message.

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Technical Communication Is Designed

- Design helps readers both find information and understand it.
- Ingredients of design: the appearance on the page and the structure of the content.

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Technical Communication Is Designed – *Design the Appearance*

- Designing the appearance: creating a page that helps readers locate information and see the relationship among various pieces of information.
- Use the following:
  - Headings: phrases that name the contents of the section that follows.
  - Chunks: a chunk is any block of text. Use a series of short blocks rather than one long block.
  - Visual aids: graphs, tables, etc. They reinforce the message in the text.
  - Hyperlinks: words embedded in the document that help the reader navigate to more information.

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Technical Communication Is Designed – *Design the Content*

- Designing the content: selecting the sequence of the material and presenting it in a way that help the reader grasp it.
- Use the following:
  - Arrange the material top-down: putting the main idea first. This establishes the context and the outline of the discussion.
  - Establish a consistent visual logic: each element of format is presented as the same as other similar elements. Example: capitalization, boldfacing, position, etc.

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Technical Communication is Responsible

- Technical writing is an **ethical endeavor**.
  - Writers must follow accepted principles of moral conduct "take responsibility for your own writing".
- You take responsibility because your readers trust you.
- In the text of your document, you must tell the truth, and make sure your audience understands your message.
  - Use language and visuals with precision; use format honestly; use simple, direct expression of ideas; and credit the ideas or work of others.

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Top

List two major sections of the document

Primary subdivision

Secondary subdivisions

Primary subdivision

Technical writing is the practical writing that people do on their jobs. The goal of technical writing is to help people get work done. This report explains two key characteristics of technical writing: audience centered and designed.

Audience Centered. Writing is audience centered when it focuses on helping the audience. To help the audience, the writer must help the reader act and must remember community values.

Help Act. Writing helps readers get a job done or increase their knowledge so that they can apply it another time in their job.

Community Values. Everyone who belongs to any organization agrees with or lives by some of that organization's values. The writer must be sure not to offend those values.

Designed. Technical writing appears in a more designed mode than many other types of writing. Design strategies help readers grasp messages quickly. Three key strategies are the top-down approach, the use of heads, and the use of chunks. Figure 1 illustrates the two methods. The first sentence is the top, or main, idea. The boldfaced words are the heads, which announce topics, and the x's represent the chunks or ideas.

There are two methods: heads and chunks.

Heads
xxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxx

Chunks
xxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxx

Figure 1.
Two Design Strategies

Remember, to be a good technical writer, always put your audience first and always design your material.

Figure 1.4 Sample Page

Technical Writing
Chapter 4: Technical Communication Style

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Content

- A-Write clear sentences for the reader
- B-Write clear paragraphs for the reader
- C-Choose a tone for the reader
- D-Organize documents clearly

2

2

A-Write clear sentences for the reader

Recall two important concepts.

1- place the main idea first

2- Use Normal word order

ex: Subject – verb –Object

3

3

Sentence Strategies

- ◗ ◗Write in the active voice
- ◗ ◗Use parallelism
- ◗ ◗Use *there are* constructions carefully
- ◗ ◗Avoid "nominalizations"
- ◗ ◗ Put the main idea first, if possible
- ◗ ◗ Try to keep sentence length between 12 and 25 words
- ◗ ◗Use *you* correctly
- ◗ ◗Don't use sexist constructions
- ◗ ◗ Eliminate common clarity errors

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1- Use the active voice

it emphasizes the performer of the action rather than the receiver.

Note : Sometimes, the passive is used to show that the situation is typical, to conceal responsibility or to avoid accusation

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- Move the person acting out of a prepositional phrase.

Passive	The test was conducted *by the intern*.
Active	*The intern* conducted the test.

- Supply a subject (a person or an agent).

Passive	This method was ruled out.
Active	*The staff* ruled out this method.
Active	*I* ruled out this method.

- Substitute an active verb for a passive one.

Passive	The heated water is *sent* into the chamber.
Active	The heated water *flows* into the chamber.

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Typical situation needs no agent	Robots are used in repetitive activities.
Active verb requires an unnecessary agent (companies)	Companies use robots in repetitive activities.
Active accuses	You violated the ethics code by doing that.
Passive avoids accusing	The ethics code was violated by that act.

The passive voice can also be used to emphasize a certain word.

Use passive to emphasize *milk samples*	Milk samples are preserved by the additive.
Use active to emphasize *additive*	The additive preserves the milk samples.

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2- Employ Parallelism: similar structure for similar elements

My duties included *coming* in early in the morning and doing preparation work, *to cook* on the front line, *trained* new employees, and *took* inventory.
My duties included *coming* in early to do preparation, *cooking* on the front line, *training* new employees, and *taking* inventory.
Typical writing situations include *proposals, the sending of* e-mail, and *how to update* the system.
Typical writing situations include *editing* proposals, *sending e-mail,* and *up-dating* the system.

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3-Use"There Are" Sparingly

- Bury the subject in the middle.

There is a change in efficiency policy that could increase our profits.
Our profits will increase if we change our efficiency policy.
There are three problems that this process has.
This process has three problems.
There are two reasons why we should talk about abandoning our current location.
We should abandon our current location for two reasons.

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4- Avoid nominalization: turning verbs into nouns by adding a suffix " –ion, -ity,-ment….etc"

The training policy for most personnel will have the *requirement* of the *completion* of an initial one-week seminar.
The training policy will *require* most personnel *to complete* a one-week seminar.
There will be costs for the *installation* of this machine in the vicinity of $10,000.
We can *install* this machine for about $10,000. The machine will cost $10,000 *to install.*

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5-Put the main idea first

The writing of manufacturing processes, which explain the sequence of a part's production, and design specifications, which detail the materials needed to produce an object, are two types of professional writing I will do.
Two types of professional writing that I will do are writing manufacturing processes, which explain the sequence of a part's production, and design specifications, which detail the materials needed to produce an object.

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6- Write sentence of 12 to 25 words

Shorter or longer sentences are weaker as they become too simple or too complicated.

The problem is the efficiency policy, which has measures that emphasize producing as many parts as possible, for instance, 450 per hour, compared to a predetermined standard, usually measured by the machine's capacity, say, 500, for a rating of 90%.
The problem is the efficiency policy, which calls for producing as many parts as possible compared to a predetermined standard. If a machine produces 450 per hour and if its capacity is 500 per hour, it has a rating of 90%.

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7-Use the Pronoun "You" correctly:

- Do not use "You" in writing formal reports
- Use "You" to mean the reader

I knew when I took the training course that *you* must experience the problems firsthand.
I knew when I took the training course that I needed to experience the problems firsthand.

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- 8- Avoid gender language
  - Use general language ,avoid he/she , and use "they" instead. [gender language]

The clerk must make sure that *he* punches in.
The clerk must make sure *to punch* in.
The clerks must make sure that *they* punch in.
Everyone will bring their special dish to the company potluck.

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- 9-Eliminate Common Clarity Errors
- 9.1Avoid strings of Choppy sentences (fragments: partial sentences with incomplete information)

Both models offer safety belts. Both models have counterbalancing. Each one has a horn. Each one has lights. One offers wing-sided seats. These seats enhance safety.
Both models offer safety belts, counterbalancing, a horn, and lights. Only one offers wing-sided seats, which enhance safety.

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- 9-2Avoid wordiness: Try to avoid excess wording by eliminating redundancy, repetition,

Example: it is made of very thin glass that is milky white in color

Revised: it is made of thin milky white glass

- 9-3Avoid redundant phrases: see examples/list

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I found the site *by the use of keywords that are* nanotechnology and innovation
I found the site using *the keywords* "nanotechnology" and "innovation."
It is made of *very* thin glass *that is milky white in color.*
It is made of thin, milky white glass.
The tuning handle is a metal protrusion that can be easily grasped *hold of by the hand* to turn the gears.
The tuning handle is a metal protrusion that can be easily grasped to turn the gears.
This search was done by a *keyword search* of the *same words* using the *search function* of different *search engines.*
This investigation used the same keywords in different search engines.

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- 9-4 Avoid noun clusters: three or more nouns joined in a phrase.

Allowing *individual input variance* of *data process entry* will result in *higher keyboarder morale.*
We will have higher morale if we allow the keyboarders to enter data at their own rate.

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B-Write clear paragraph for the reader

- put the topic sentence first
- Write coherent paragraphs
  - 1-Arrange sentences by level
  - 2-Repeat terms in New/Old sequence
  - 3-Use the dominant position
  - 4-Maintain class or memberships relationships
  - 5-Provide transition

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Put the topic sentence first

- The *topic sentence* expresses the paragraph's central idea, and the remaining sentences develop, explain, and support the central idea
- This top-down arrangement enables readers to grasp the ideas in paragraphs more quickly

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- Here is another way to think about the top-down method—think of each sentence
- as having a "level." On the first level is the topic sentence.
- The second level consists of sentences that support or explain the topic sentence.
- The third level consists of sentences that develop one of the second-level ideas.
- Four sentences, then, could have several different relationships. For instance, the last three could all expand the idea in the first:

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WRITE CLEAR PARAGRAPH FOR THE READER --1-ARRANGE LEVELS

1 First level	*1 First level*
2 Second level	2 Second level
3 Third level	3 Second level
4 Third level	4 Second level

Hydraulic pumps are classified as either nonpositive or positive displacement units. Nonpositive displacement pumps produce a continuous flow. Because of this design, there is no positive internal seal against leakage, and their output varies as pressure varies. Positive displacement pumps produce a pulsating flow. Their design provides a positive internal seal against leakage. Their output is virtually unaffected as system pressure varies.

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- The sentences of this paragraph have the following structure:
- (1) Hydraulic pumps are classified as either nonpositive or positive displacement units.
- (2) Nonpositive displacement pumps produce a continuous flow.
- (3) Because of this design, there is no positive internal seal against leakage, as their output pressure varies.
- (2) Positive displacement pumps produce a pulsating flow.
- (3) Their design provides a positive internal seal against leakage.
- (3) Their output is virtually unaffected as the system pressure varies.

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WRITE CLEAR PARAGRAPH FOR THE READER --2-NEW/OLD SQEQUENCE

- Sentences in a paragraph can follow an alternating sequence of supplying new information, which in turn becomes old information as the next sentence add more new information. In the following example, notice that the *new* information,*collided* (sentence 1), becomes *old* information, *collision* (sentences 2 and 3), and that *mountain range* is *new* information in sentence 3 but *old* information in sentence 4.

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Subduction stopped when the continent *collided* with the island arc along its northern margin. This *collision* resulted in extensive deformation of the island arc as well as deformation of the sedimentary rocks on the continental margin described earlier. The *collision* produced a *mountain range* across northern Wisconsin. This ancient *mountain range* is called the Penokean Mountains. The eroded remnants of these *mountains* constitute much of the bedrock of Wisconsin, Minnesota, and Michigan. (LaBerge 111)

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WRITE CLEAR PARAGRAPH FOR THE READER --3-USE THE DOMINANT POSITION

- Repeat key term as the subject or Main idea of a sentence.
  - "collision" in the previous example

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Write clear paragraph for the reader --4-Maintain Class relationships

- To indicate class or membership relationships, use words that show that the subsequent sentences are subparts of the topic sentence. In the following sentences, *distributed media* and *online systems* are members of the class *paradigm*.
- *Notice that the two terms also appear in the dominant position and that, if you indicated their level, they would both begin level 2 ideas.*

Interactive multimedia follows one of two paradigms. Distributed media, such as CDs, are self-contained and circulated to audiences in the same manner as books or audio recordings. Online systems, such as intranets and the Web, resemble broadcasting in that the content originates from one central location and the use accesses it from a distance. (Bonime and Pohlman 177)

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Write clear paragraph for the reader --5-Provide Transisitons

- Using transitions means connecting sentences by using words that signal a sequence or a pattern.
  - The common transitions such as *first/second, not only/but also, however, therefore, and, and but* are well known

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C-Choose a tone for the reader

Control the tone in order to communicate effectively

How?

Four possible tones:

1-Forceful : the writer is in control of the situation and the situation is positive

2- Passive: the reader has more power than the writer or the situation is negative

3- Personal: the reader and the writer are equal

4- Impersonal: the writer is not important or the situation is neutral

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Choose a tone for the reader

- Forceful: The *forceful* tone implies that the writer is in control of the situation or that the situation is positive. It is appropriate when the writer addresses subordinates or when the writer's goal is to express confidence.
  - Use the active voice.
  - Use the subject–verb–object structure.
  - Do not use "weasel words" (*possibly, maybe, perhaps*).
  - Use imperatives.
  - Clearly indicate that you are the responsible agent.

I have decided to implement your suggestion that we supply all office workers with laptops and eliminate their towers. This suggestion is excellent. You have clearly made the case that this change will reduce eyestrain issues and will greatly enhance the flow of information in the department. Make an appointment with me so we can start to implement this fine idea.

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30

CHOOSE A TONE FOR THE READER

- Passive: the reader has more power than the writer or that the situation is negative.
  - The writer addresses a superior
  - The writer's goal is to neutralize a potentially ne
    - Avoid imperatives.
    - Use the passive voice.
    - Use "weasel words" (*very, several people, quite, fairly*).
    - Use longer sentences.
    - Do not explicitly take responsibility.

The proposal to implement laptops in our department has not been accepted because of a number of very difficult issues. To our surprise several people have indicated that the ergonomic benefits of the screens are not seen as not quite offsetting the potential disruption that will be caused by the migration of files to the new machines. The large footprint of the docking station has also been suggested as a possible problem for our employees due to their fairly restricted desk space. Because the need for action on computer replacement is necessary, a meeting will be scheduled next week to discuss this.

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CHOOSE A TONE FOR THE READER

- Passive

The proposal to implement laptops in our department has not been accepted because of a number of very difficult issues. To our surprise several people have indicated that the ergonomic benefits of the screens are not seen as not quite offsetting the potential disruption that will be caused by the migration of files to the new machines. The large footprint of the docking station has also been suggested as a possible problem for our employees due to their fairly restricted desk space. Because the need for action on computer replacement is necessary, a meeting will be scheduled next week to discuss this.

- Forceful

The steering committee and I reject the laptop proposal. You have not included enough convincing data on morale or work flow, and you have not dealt with work flow disruption and the large size of the docking station. Make an appointment to see me if necessary.

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CHOOSE A TONE FOR THE READER

- Personal: reader and writer are equal.
  - It is appropriate to use when you want to express respect for the reader

- Use the active voice.
- Use first names.
- Use personal pronouns.
- Use short sentences.
- Use contractions.
- Direct questions at the reader.

Ted, thanks for that laptop suggestion. The steering committee loved it. Like you, we feel it will solve the eyestrain issue and will facilitate data flow. And we think it will also raise morale. I'd like you to begin work on this soon. Can you make an appointment to see me this week?

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CHOOSE A TONE FOR THE READER

- Personal

Ted, thanks for the laptop suggestion, but we can't do it this cycle. The steering committee understands the ergonomic issue you raise, but they are very concerned about the disruption that migrating all those files will cause. In addition, they feel that we need to work out the entire issue of footprint—the model you suggested would cause a number of problems with current desk configurations. I know that this is a disappointment. Could we get together soon to discuss this?

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CHOOSE A TONE FOR THE READER

- Impersonal: The writer is not important or that the situation is neutral. Use this tone when you want to downplay personalities in the situation

  - Do not use names, especially first names.
  - Do not use personal pronouns.
  - Use the passive voice.
  - Use longer sentences.

  A decision to provide each employee with a laptop has been made. Laptops will reduce the eye fatigue that some employees have experienced, and the laptops will increase data flow. Ted Baxter will chair the implementation committee. Donna Silver and Robert Sirabian will assist. The committee will hold its initial meeting on Monday, October 10, at 3:00 P.M. in Room 111.

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D-ORGANIZE DOCUMENTS CLEARLY

How?

1- Use context setting introduction

Define terms, the reason why you are writing the document, purpose…etc.

2- place important material at the top

3- use preview lists

4- sequencing

5- parallelism

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ELIMINATE NOISE AND PUNCTUATION

Comma: (,)

1) Use commas after introducing sentence.

2) Use serial commas when you list words or ideas.

Semicolon: (;)

If you use (however, therefore, namely, consequently, accordingly), you should use semicolon before and comma after.

To separate series of short sentences: if there are internal punctuation inside them.

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CONT…..

Colon: (:)

Separate hour and time: 3:30.

Divide parts of book or article titles.

Introduce an informal list.

Parentheses: ( )

To set off (facts) or (references) in your writing

Example: ……(See Figure 2.3)

……(born in 1929)

……(published in 1998)

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CONT….

Hyphens: (-)

1) Do not hyphenate prefixes: pre-, re-, semi-, and sub-

Except: preexisting or pre-existing

ultraadaptable or ultra-adaptable

reengineering or re-engineering

Example: coop and co-op

2) Do not hyphenate compound words: -ly

Example: optimally achieved

highly appreciated

3) Use when to eliminate noise: computer-assisted, knowledge-based

4) With ranges of numbers: 31-34, $ 350-400

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CONT….

Dashes: (-)

To call attention to words set aside or after it

Avoid it in very formal writing.

Exclamation points: (!)

Avoid it in professional writing, except for warning.

Example: “DANGER: Sodium cyanide is extremely toxic!”

Quotation marks: (“…”)

To set off direct quotation in the text

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SENTENCE STYLE

Connecting subjects to verbs

Either/or, Neither/nor : make is, was, are, were consistent **with the last noun**

Example: "Neither he, nor she was prepared for the exam"

Avoid unclear Jargons:

Jargons are technical terminologies that are not familiar to all audience

Use clear abbreviation:

1) Initialization: Taking the first letters: GPA, LED, NASA, ROM

2) Acronyms: bit, laser, pixel, radar, sonar

Technical Writing
Chapter 9: Sets of Instructions

1

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1

A. Planning the set of instructions

- 1-Determine your goal: *To complete*

a project means to arrive at a definite end result:

  - Complete a project: assemble a toy
  - Learn a process: become proficient enough to perform process without set of instructions
    - Adjust a camera
    - Computer login

- 2-Consider the audience:
  - **2.1 Estimate the audience's knowledge level:**
  - Beginners/intermediate. How much information to include telling beginners to turn on a computer. They will not be able to do this because they will not know where to look for the power switch. For an intermediate, however, "turn it on" is sufficient.
  - **2.2 Identify constraints: Emotional or physical ones.**
- Many people have a good deal of anxiety about doing something for the first time. They worry that they will make mistakes and that those mistakes will cost them their labor. If they tighten the wrench too hard, will the bolt snap off? If they hit the wrong key, will they lose the entire contents of their document? Include tips about what should happen at each step and what to do if something went wrong
- The physical constraints are usually the materials needed to perform the process , but they might also be special environmental considerations. A Phillips screw cannot be tightened with a regular screwdriver; a three pound hammer cannot be swung in a restricted space; in a dark room,only a red light can shine. Physical constraints also include safety concerns.

2

2

CONTINUE…

- 3-Analyze the sequence (chronological order of the steps):
  - 3.1 Determine the end goal
    - The end goal is whatever you want the reader to achieve
    - The goal affects the number of steps in the sequence
    - wireless connection
    - Add optional devices(will require more instructions)
  - 3.2 Analyze the tasks:
    - Determine the sequence and name the steps
    - Sequence (forward or backward)
  - 3.3 Name and explain the tasks: any subtasks or special information,
  - Name and Explain the Tasks Having decided on the sequence, you name each task and explain any subtask or special information that accompanies it
  - 3.4 Analyze conditions: safety consideration
  - Ethernet ports: Which port to use for each jack
  - Analyze any special conditions that the user must know about.
  - Safety considerations are very important, and safety warnings are an essential part of many instructions
  - If it will hurt them or the machine, tell the audience

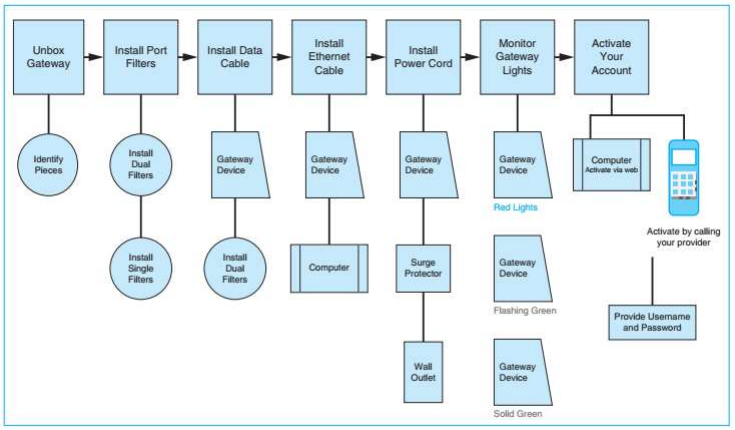

Figure 9.1 Flow Chart of an Analysis

CONTINUE…

- 4- Choose visual aids:
  - To orient the reader
    - which keys to press on keyboard
    - Example of email fields
  - To show the effect of an action,
    - How the screen looks like after you issue a command using the keyboard
  - How many?
    - One or two for the entire document or one per step if it is complicated.
  - The place (close to the discussion),
  - Clear,
  - Caption to identify it,
  - Refer to the visual aids in the text.

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VISUAL AID EXAMPLE

At the TO: prompt type their NAME, not their real name but their e-mail user name, and then press enter. The SUBJ: prompt will appear. (See Figure 1—note that you do not have to type in all capital letters, though you may.) On our system, the user name is generally the last name and the first one or two letters of the first name.

```
mail>SEND
TO: SMITHJ
SUBJ: Learning e-mail
Enter your message below
```

Figure 1.
On-Campus E-mail Address

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CONTINUE…

- 5- Follow Form for instructions : The usual form for a set of instructions is an introduction followed by a step-by-step body.
  - Introduction
    - Purpose of the set of instructions
  - Step by step body:
    - Actions in chronological order
    - Have a style sheet to make sure that your style is consistent
      - Highlight the beginning (underlined or boldface),
      - Number each step,
      - Format (margins, visual aids…)

7

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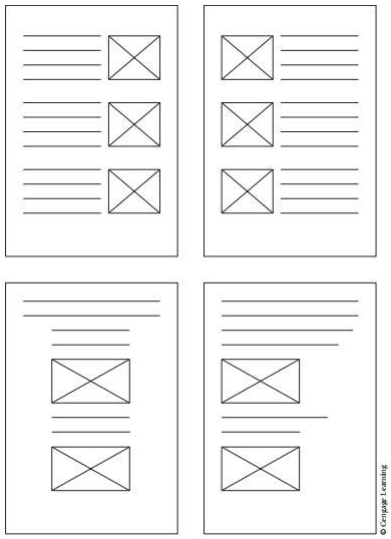

Figure 9.3 Different Column Arrangements for Instructions

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8

B. Writing the Set of Instructions

- 1. Write an effective introduction:
  - Define the process
  - Define key terms
  - List any tools, materials or conditions
  - Explain who needs to do it
  - Explain when and where to do it
  - List the assumption you make

9

End goal
Background

Knowledge assumption

Materials list

INSTALLING HIGH-SPEED INTERNET

INTRODUCTION

These instructions enable you to set up a high-speed Internet gateway with a wifi access point. This will allow you to share files over a wireless network without the need to install Ethernet cables throughout your home. It will also allow you to connect wifi-only devices to the Internet including smartphones, tablets, laptops, and Internet-ready televisions.

These instructions assume that you have subscribed to DSL service and have purchased the hardware gateway device kit provided through your local telephone company. Make sure you have wireless cards in all the computers that will connect to the wireless network.

Figure 9.4 Introduction to a Set of Instructions

10

CONTINUE…

- 2. Write an effective body:
  - Use the correct order
  - Use imperative verbs
  - Do NOT omit articles (a, an and the) or preposition
  - State one action per step
  - Explain unusual effects
  - Make suggestions to avoid or correct mistakes
  - Mention the safety cautions before the instructions
  - Give reasons (if possible)

11

TWO STYLE TIPS FOR INSTRUCTIONS

- Use imperative verbs:

  An imperative verb gives an order. Imperative verbs make clear that the step must be done. Notice below that "should" introduces a note of uncertainty about whether the act must be performed

  - Ex:

    1-Make sure you have wireless card. (Good)

    2- you should make sure that you have wireless cards. (Not good)

- Retain short words
  - Use a, an and the in all the usual places.
  - Eliminating them makes the instruction harder to grasp
    - Ex

      1- Unbox gateway device and identify pieces against instruction set.

      2- Unbox the gateway device and identify all the pieces against the instruction set.

12

Example 9.2

Two Sets of Instructions for Intermediate Readers

HOW TO CREATE A PDF FROM AN MS WORD FILE (IN MS WORD 2007)

1. Open the file.
2. Select *Save As.*
3. Select *Adobe PDF.*
   OR
4. Open the file and select *Print.*
5. In the *Print* menu find *Print to Adobe PDF* (the command varies but all of them say PDF).
6. Select *OK*. The file is saved as a PDF on your computer.

HOW TO ADD AUDIO COMMENTS TO A PDF

Equipment: A head set with a microphone makes your comments clearer. You can also just turn on the computer microphone and speak to the computer.

1. Open Acrobat Professional.
2. Select *File/Open*.
3. Open the file to which you plan to add comments.
4. Select *Review and Comment,* then *Comment and Markup Tools.*
5. Select *Record Audio Comment*. The audio comment icon appears.
6. Position the icon at the spot where you wish to add a comment.
7. Right Click. The **Sound Recorder Menu** appears.
8. Click the red **Record** dot to begin recording. Speak your comment. Click the **Record** dot again to end recording.
9. Save the document.
10. Repeat the process as often as you wish.

C. Field-Testing Instructions

- It is a method of direct observation by which you can check the accuracy of your instructions.
- Ask someone (unfamiliar) to follow your instructions and see if the reader hesitates or asks questions.

TECHNICAL WRITING

INFORMAL REPORTS AND E-MAIL

1

Instructor:
Dr. Mohammad Abdel-Majeed

1

A. ELEMENTS OF INFORMAL REPORTS

- Informal reports: are those that will not have wide distribution, will not be published, and are (usually) shorter than ten pages (General Motors).
- The basic strategies are
  - 1. Create an effective introduction,
  - 2. Develop a consistent visual presentation
  - 3. Follow the expected "thought path," if there is one.

2

2

ELEMENTS OF INFORMAL REPORTS

- 1. Introduction
- Introductions orient readers to the contents of the document.
- create an introduction, you can do one of three things: provide the objective, provide context, or provide an expanded context
  - 1.1 Provide Objective
- A one-sentence statement of the purpose or main point of the project or report.

Objective of the project	To evaluate whether the Mertes Hardware should install an Iconglow retail point of sale system
Objective of the report	To report on investigation of the feasibility of installing an Iconglow retail point of sale system in the three Mertes hardware stores.

3

ELEMENTS OF INFORMAL REPORTS

- Introduction
  - 1.2 Provide Context: Situation that caused you to write the report
    - Tell what caused you to write. Perhaps you are reporting on an assignment, or you may have discovered something the recipient needs to know.
    - Explain why you are credible in the situation. You are credible because of either your actions or your position.
    - State the report's purpose. Use one clear sentence: "This report recommends that Mertes Tile should install an Iconglow retail point of sale system."
    - Preview the contents. List the main heads that will follow.

4

ELEMENTS OF INFORMAL REPORTS

Cause for writing Source of credibility Purpose Preview	I am responding to your recent request that I determine whether Mertes Hardware should install an Iconglow retail point of sale system. In gathering this information, I interviewed John Broderick, the Iconglow Regional Sales Representative. He reviewed records of current business computer system and personnel who work it in various capacities. This report recommends that Mertes Tile install the Iconglow system. I base the recommendation on cost, space, training, and customer relations.

ELEMENTS OF INFORMAL REPORTS

- 2. Develop Consistent Visual Aids : THREE ITEMS
  - 2.1 Headings
    - Use a word or phrase that indicates the contents immediately following.
    - At times, use a question for an effective head.
    - Place heads at the left margin, double-spaced above and single-spaced below. Use boldface or all caps. Or choose a "heading style" from your word processor's *Styles* menu. Usually bold face is easiest to add and to read.
    - Capitalize either every word or else use "down style" (capitalize only the first word and any proper nouns).

ELEMENTS OF INFORMAL REPORTS

Side left, boldface

Double-space

Will the New System Save Money?

The new Iconglow system will pay for itself within ten months. Currently, employees spend 87 hours a month updating files. The new system will reduce that figure to 27, a savings of 60 hours. These 60 hours represent a payroll savings of $900.00 a month.We will need to purchase capabilities for six stations at a cost of $1500 each, or a total of $9,000. The savings alone will pay for the system in ten months. This amount of time is under the one-year period allowed for recovery.

Double space

Is There Enough Space for the System?

The new interface screens will easily fit in their allocated spaces at the retail counters. The current office computer system will accommodate the software upgrade and will not have to be replaced. Workflow both in the office and at the check counter will not be hampered by adding this system.

(Continued)

7

7

ELEMENTS OF INFORMAL REPORTS

- Develop Consistent Visual Aids
  - 2.1 Headings
  - 2.2 Page numbers
    - If two pages or more.
    - Use the "Insert" menu on your word processor.
    - Place page numbers in the upper right corner or in the bottom

8

8

ELEMENTS OF INFORMAL REPORTS

- Develop Consistent Visual Aids
  - 2.1 Headings
  - 2.2 Page numbers
  - 2.3 Consistently Identify Visual aids
    - Choose your caption word—for instance, Figure, Chart, Graph.
    - Place your visuals in the same relative location, at the left-hand margin or in the center.
    - Place the caption either above or below.
    - Develop a "caption style" and use it consistently. Notice the capitalization, use of numerals and period in this example: Figure 1. Quarterly Sales

9

9

TYPES OF INFORMAL REPORTS

- 1. IMRD Report (Introduction, methodology, results, discussion)
  - Example : laboratory research and questionnaire results
    - Which food to buy at fast food store
    - tell the reader **what** you wanted to find out, **how** you went about it, **what** you found out, and **what** those findings mean.
  - Parts/Sections
    - Introduction: objectives and justification (What is the goal of the report)
    - Methodology: process description of the actions you took to achieve the goal or answer the questions, How did you perform the actions
    - Results: findings using visual aids (the presentation), results of the actions
    - Discussion: significance of the findings, implication of the results, did you achieve your goal

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STUDENT ASSIGNMENT

Write an IMRD report about the following results for a hardness test experiment (10 marks)

Hardness number / materials	STEEL	Mg	Al
Test 1	90	42	42
Test 2	91	41	42
Test 3	92	39	38

11

11

B. TYPES OF INFORMAL REPORTS

- 2. Brief analytical report:

Very common in industry.

It is to review an issue with the goal of revealing important factors, and to present conclusions

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Objective
The purpose of this report is to inform you of a malfunction in the ventilation system and to propose a solution to this problem.

Summary
After receiving numerous complaints of illness from many of the employees in the Painting Department, I have inspected the ventilation system and found it inadequate. The fresh air volume entering the room is well under the requirement for safe working conditions. I have found that the problem does not lie with the fan itself, but in the drive system design. I have decided that the most economical solution is to redesign the drive system of the main ventilation fan. In this report I will address both the problem and the solution in detail.

Problem
The ventilation system that is currently in use is not providing proper fresh air volume to the painting area. The result of this problem has been numerous complaints of headaches and nausea among the employees who work in this department. After conducting extensive research, I have found that the volume of fresh air entering the area is well under the OSHA standard for safe working conditions. This lack of ventilation is not caused directly by the fan but the system that drives it.

Upon my inspection of the drive system of the fan, I found two problems: severe misalignment between the motor and fan sheaves and an improper drive speed ratio. The severe misalignment is causing extensive wear and decreased performance. The misalignment causes the belt to fit improperly into the sheave groove. The improper drive speed ratio is caused by a miscalculation in the design of the drive system. The ratio is a numeric value that compares the speed of the faster shaft to the speed of the slower shaft. This ratio is controlled through the use of sheaves with different diameters for the motor and the fan.

Solution
I propose the redesign of the drive system for the main ventilation fan. This process would include realigning the motor with respect to the fan and correcting the drive speed ratio. The realignment of the motor can be achieved by adding an adjustable base to the foot of the motor. The adjustment is made through the use of elongated holes in the base. Positioning the sheaves parallel to each other allows proper contact between the belt and the sheave thus there is better transmission of power to the fan and belt life is increased. Correction of the speed

13

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CONTINUE…

- 3. Progress reports:
  - Mainly to inform management about the progress of a project, it includes:
    - introduction: project name, purpose, time period
    - work complete: divide the project to major tasks showing the time period
    - work scheduled: plans
    - problems: if any
- 4. Trip report: it should include the reason for the trip, what was found, and conclusions

14

14

Summary
I am working on developing a user manual for the Universal Test Machine, TestWorks QT, for the UW-Stout Construction Lab. Tests have been modified for the students' use, which will require a new set of instructions. The instructions will be designed to help guide the student through machine setup, starting up the TestWorks QT software program, running the test, and proper shutdown.

Work Completed
The client and I have decided that the manual will be hard copy, 5.50∞ 80, bound with a plastic spiral. Each step of the process will include an illustration. The client decided that the manual would include instructions for three different types of tests: Bending, Compression, and Tensile. I have written instructions for the Compression test. Additional information will be added after the client reviews the instructions. Thursday, March 28, I met with the client in the construction lab where approximately 15 photos were taken for the Tensile, Compression, and Bending tests. All photos will use JPG format.

Work Scheduled
Digital photos of the Bending, Compression, and Tensile tests will be viewed and enhanced using Photoshop. I plan to have the photos prepared and sent to the client by Wednesday to view and approve.

The next client meeting occurs on April 6. After that meeting I will develop the written instructions. The client will receive the rough draft of the instructions by April 15.

Problems
The Universal Test machine is scheduled to be used for classes during the only hours I have free to conduct usability testing in the instructions. At present no students have agreed to serve as usability testers. I will work with the lab instructor to resolve these issues.

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Figure 10.5 Progress Report Example

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CONTINUE…

- 5. Outline report:
  - it is a common type with distinct headings (accompanies an oral presentation)
  - The speaker follows the outline, explaining details at the appropriate places. Procedural specifications and retail management reports often use this form.
- To write this kind of report, follow these guidelines:
  - Use heads to indicate sections *and* to function as introductions.
  - Present information in phrases or sentences, not paragraphs.
  - Indent information (as in an outline) underneath the appropriate head

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REPLACE GYMNASIUM FLOORING?

December 10, 2014

Researcher: Aaron Santana

Purpose: Evaluate whether Athletic Department should install new flooring in the Memorial Gymnasium.

Method: Interview Athletic Director, Athletic Trainer, vendors. Used these criteria:

- Cost—not to exceed 250K
- Time—less than three months
- Benefits—personal health and overall usage must be impacted

Conclusions: Gym floors meet all criteria

- Cost is less than 250K allocated
- Time to install is less than three months
- Benefits—fewer injuries; likelihood of increased usage with greater durability.

Recommendation: Install the new floor.

Figure 10.9 Sample Outline Report

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RESEARCH PAPER STUDENT SAMPLE OUTLINE

I. Introduction: The Red Panda
II. Description
  A. Taxonomy and distinction from other species they are similar to
  B. Anatomy
  C. Differences between male and female
  D. Physiology: how the body works internally: digestive, circulatory, nervous systems
III. History
  A. Where they were discovered
  B. Time of discovery compared to other similar species
  C. How were they named?
  D. Use by human cultures/ symbolism
IV. Habitat
  A. Where they can be found in the world
  B. What type of ecosystems
  C. How are they specifically adapted to survive
V. Diet
  A. What do they eat?
  B. Are they specially designed to eat particular prey?
VI. Reproduction and Growth
  A. Growth and maturity age of panda
  B. Reproduction process/mating behaviors
  C. # offspring
VII. Communication
  A. Non-vocal signs and what they mean
  B. Vocalization
  C. Inter-species as well as intra-species
VIII. Other Social Behaviors
  A. Hierarchy in groups or solo? Group dynamics.
IX. Threats and Survival Techniques

18

18

CONTINUE…

- 6. Summary and abstract:
  - To tell the reader the main point of an article, so one can decide whether to read it or not.
    - To create a summary or abstract
    - Write the main point of the article in one sentence
    - List the topics or sections of the article
    - Add the key detail or point discussed in each section
    - Be brief (usually one paragraph to one page)
    - Define terms and acronyms if needed for your audience

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CONTINUE…

This study examines batch respirometry as a screening tool to identify problematic papermaking additives that could disrupt the biological treatment of mill effluent. The method rapidly evaluates the toxicity of paper additives by tracking oxygen consumption of the respiring microorganisms in the activated sludge. Batch screening tests of 20 paper additives indicated that three paper dyes, a cleaner/solvent, and a microbiocide were the most toxic to the respiring biomass, while polymeric additives had no significant impact. A four-month pilot study with an orange dye confirmed the validity of the rapid respirometric method coupled with microscopic examination. The results also show that biological treatment systems can recover from the impact of harmful additives.

Figure 10.6 Professional Abstract

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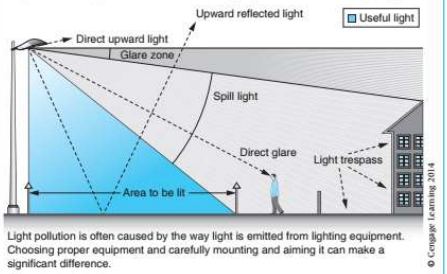
CONTINUE…

- 7. Background or conceptual report:
  - it gives the readers information about a situation or topic.
  - Basically such a report is an explanation.
  - These reports give readers access to the topic, with the intent that they are reasonably satisfied that they understand the basic or important issues involved
  - consider the audience's knowledge
  - In almost all cases the audience knows little about the topic.
  - **Examples**:
    - cloud formations, to plumbing systems, to volcano eruptions.
    - social media site such as Twitter or Facebook,
      - For instance, the privacy settings on photographs are a concern to many who post photos. A clear explanation of each choice will allow users to understand the system and make choices that they are comfortable with.

What is light pollution?

Light pollution is an unwanted consequence of outdoor lighting and includes such effects as sky glow, light trespass, and glare. An illustration of both useful light and the components of light pollution are illustrated in Figure 2. Sky glow is a brightening of the sky caused by both natural and human-made factors. The key factor of sky glow that contributes to light pollution is outdoor lighting.



Light pollution is often caused by the way light is emitted from lighting equipment. Choosing proper equipment and carefully mounting and aiming it can make a significant difference.

Figure 2. *Example of useful light and light pollution from a typical pole-mounted outdoor luminaire*

Light trespass is light being cast where it is not wanted or needed, such as light from a streetlight or a floodlight that illuminates a neighbor's bedroom at night making it difficult to sleep.

Glare can be thought of as objectionable brightness. It can be disabling or discomforting. There are several kinds of glare, the worst of which is disability glare, because it causes a loss of visibility from stray light being scattered within the eye. Discomfort glare is the sensation of annoyance or even pain induced by overly bright sources. Think of driving along a dark road when an oncoming car with bright headlights suddenly appears. The sudden bright light can be uncomfortable and make it difficult to see. Discomfort and even disability glare can also be caused by streetlights, parking lot lights, floodlights, signs, sports field lighting, and decorative and landscape lights.

Figure 10.8 Background Report

8. E-MAIL

- To create effective e-mail:
  - *1. Consider your audience*
    - Arrange your e-mail so that the audience can quickly grasp what you want from them. Put the most important points at "the top" of the message.
    - Personalize the e-mail with a quick personal comment ("Nice to see you last weekend") at the end. Add your name to the end, even if your "signature name" also appears (Type "Gwen" even if your signature name appears as "Gwendolyn P. Goldman") (Burstein; "15")
    - Use the appropriate level of formality. Don't write as if the recipient were your best friend, if she is not. Don't use "text style" ("How r u?").

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E-MAIL

- To create effective e-mail:
  - *1. Consider your audience*
  - *2. Use the elements of the e-mail effectively (subject line, attachment…)*
  - *3. Write clear subject line*
    - Start with an information-bearing word. Say "Budget meeting scheduled Monday, 10 a.m. Rm103 " rather than "Budget meeting" or "Meeting." Or "Hi—meet me after your class?" rather than "Hi.
    - Keep the subject line relatively short.
    - People often open messages with RE in the subject line (so don't change the subject when you reply). In a subject line, state content—"Response to your 7-25 budget request."
    - Make the subject line a short summary of your message. (Nielsen; Rhodes; "ITS")

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E-MAIL

To create effective e-mail:

- *Consider your audience*
- *Use the elements of the e-mail effectively (subject line, attachment…)*
- *Write clear subject line*
- *Use "To", "CC" and "BCC" lines effectively*
- *Check addresses*
- *Decide whether to include attachments or not*
- *Keep short and to the point (to do or to read)*
  - *Long emails!!!*
- *Pay attention to the body: context, paragraphs, the end …*
  - *Establish the context in the email (reply with yes and some description)*
- *Be prudent: institutional emails*
  - *Be careful about sending personal or sensitive information*

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25

TIP

E-mailing Reports

Often the goal of an e-mail is to send a report to an audience. Suppose the report is three pages long. It is too long to be effective in the body of the e-mail, and the e-mail program might strip out all the formatting you have inserted to help readers, like bold face.

If recipients decide to print the report, it is much easier to print the attachment, which is a word processing document and contains the report and any visual aids, but not all the To/From/Subject and other routing material contained in the e-mail.

How should you handle this?

Turn the e-mail into a cover letter. In several sentences name the report (and include its filename), its contents, and why the reader(s) are receiving it.

Hi all, attached is the First Quarter 2013 sales report (2013FQSalesNW) for the Northwest region. It condenses all the sales data by retail item. We will discuss this report at our meeting, Tuesday, July 22, 2014.

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TECHNICAL WRITING
FORMAL REPORTS

1

Instructor:
Dr. Mohammad Abdel-Majeed

1

FORMAL REPORTS

Formal reports presented in special way to emphasis the importance of their contents.

Formal reports are used to present recommendations or results of research, perceived importance to the community and company policy.

The difference between formal and informal reports is in the changed perception caused by the formal presentation.

2

2

INFORMAL VS FORMAL REPORTS

- Elements unique to the formal report are
  - the front material
  - the method of presenting the body.
  - Other elements—appendixes, reference sections, introductions, conclusions, and recommendations—are often associated with the formal report but do not necessarily make the report formal;

3

3

ELEMENTS OF FORMAL REPORTS

Elements for formal reports are used to orient readers to the report's topics and organization

1. Front material
2. Presenting the body of the report
3. Ending material

4

4

FORMAL REPORTS

Traditional	Administrative
Title page	Title page
Table of contents	Table of contents
List of illustrations	List of illustrations
Summary or abstract	Summary or abstract
Introduction	Introduction
Discussion—Body Sections	Conclusions
Conclusions	Recommendations/Rationale
Recommendations/Rationale	Discussion—Body Sections
References	References

5

5

ELEMENTS OF FORMAL REPORTS

1. Front material

- *transmittal correspondence* is a memo or letter that directs the reports to someone. The memo is internal , the letter is external.

  The correspondence contains :

  - The title of the reports
  - A statement (if requested)
  - The purpose and scope of the report
  - An explanation of problem encountered
  - Acknowledgement

6

6

Title of report
Cause of writing

Purpose of report

Statement of request

Praise of coworkers

To: Ms. Elena Solomonova, Vice-President, Administrative Affairs
From: Rachel A. Jacobson, Human Resources Director
Subject: Proposal for the Spousal Employment Assistance Program

Attached is my report "Proposal for the Implementation of a Spousal Employment Assistance Program," which you requested after our March 15 meeting.

The report presents a solution to the problems identified by our large number of new hires. In brief, those new hires all had spouses who had to leave careers to move to Rochester. This proposal recommends initiating a spousal employment assistance program to deal with relocation problems.

Compiled by the Human Resources staff, this report owes a significant debt to the employees and their spouses who agreed to be interviewed as part of its preparation.

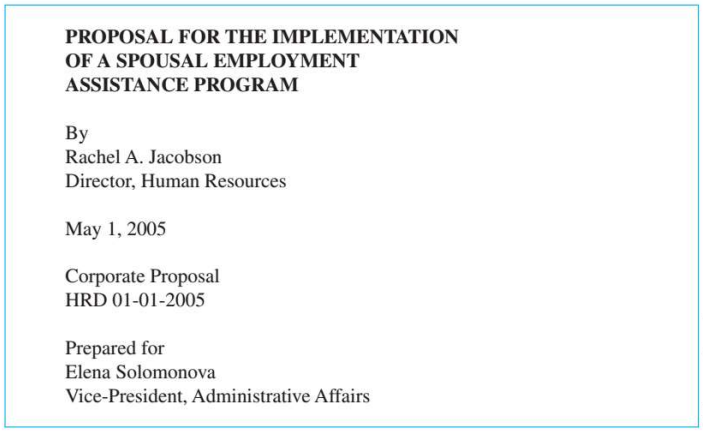
Figure 12.1 Sample E-mail of Transmittal

ELEMENTS OF FORMAL REPORTS

- Front material
  - Title page
    - Place all the elements at the left margin (ANSI). (Center all the elements if local policy insists.)
    - Name the contents of the report in the title.
    - Use either all caps or initial caps and lowercase letters; use boldface when appropriate. Do not use "glitzy" typefaces, such as outlined or cursive fonts.
    - Include the writer's name and title or department, the date, the recipient's name and title or department, and a report number (if appropriate).

ELEMENTS OF FORMAL REPORTS

- Front material



PROPOSAL FOR THE IMPLEMENTATION OF A SPOUSAL EMPLOYMENT ASSISTANCE PROGRAM

By
Rachel A. Jacobson
Director, Human Resources

May 1, 2005

Corporate Proposal
HRD 01-01-2005

Prepared for
Elena Solomonova
Vice-President, Administrative Affairs

Figure 12.2 Title Page for a Formal Report

ELEMENTS OF FORMAL REPORTS

- Front material
  - Title page
  - Table of contents
    - Title the page *Table of Contents.*
    - Present the name of each section in the same wording and format as it appears in the text. If a section title is all caps in the text, place it in all caps in the table of contents.
    - Do not underline in the table of contents; the lines are so powerful that they overwhelm the words.
    - Do not use "page" or "p." before the page numbers.
    - Use only the page number on which the section starts.
    - Set margins so that page numbers align on the right.
    - Present no more than three levels of heads; two is usually best.
    - Use *leaders,* a series of dots, to connect words to page numbers.

Elements of Formal Reports

- Front material

TABLE OF CONTENTS

Figure 12.3 Table of Contents for an Administrative Report

Elements of Formal Reports

- Front material
  - Title page
  - Table of contents
  - 3. List of illustrations
    - Use the title *List of Illustrations* if it contains both figures and tables; list figures first, then tables.
    - If the list contains only figures or only tables, call it *List of Figures* or *List of Tables*.
    - List the number, title, and page of each visual aid.
    - Place the list on the most convenient page. If possible, put it on the same page as the table of contents.

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LIST OF ILLUSTRATIONS

Figure 1. Schedule for Program Implementation 10
Table 1. Special Features of the Program 7
Table 2. Cost/Employee Investment Comparison 8

Figure 12.4 List of Illustrations for a Formal Report

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ELEMENTS OF FORMAL REPORTS

- Front material
  - Title page
  - Table of contents
  - List of illustrations
  - 4. Summary or Abstract
    - The report's purpose and the problem it addresses.
    - The conclusions.
    - The major facts on which the conclusions are based.
    - The recommendations.

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14

Recommendation given first

Background

Basic conclusions

Benefits

Cost

Implementation

SUMMARY

This report recommends that the company implement a spousal assistance program. Swift expansion of the company has brought many new employees to us, most of whom had spouses who left professional careers. Because no assistance program exists, our employees and their spouses have found themselves involved in costly, time-consuming, and stressful situations that in several instances have affected productivity on the job.

A spousal assistance program will provide services that include home- and neighborhood-finding assistance, medical practitioner referrals, and employment-seeking assistance. Advantages include increased employee morale, increased job satisfaction, and greater company loyalty.

Cost is approximately $54,000/year. The major benefit is productivity of the management staff. The program will take approximately six months to implement and will require hiring one spousal employment assistance counselor.

Figure 12.5 Summary Example

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ELEMENTS OF FORMAL REPORTS

- Front material (cont.)
  - 5. Introduction
    - Purpose statement
      - State the purpose clearly. Use one of two forms: "The purpose of this report is to present the results of the investigation" or "This report presents the results of my investigation."
      - Use the *present* tense.
      - Name the alternatives if necessary.
    - Scope statement: *scope statement* reveals the topics covered in a report. Follow these guidelines:
      - In feasibility and recommendation reports, name the criteria; include statements explaining the rank order and source of the criteria.
      - In other kinds of reports, identify the main sections, or topics, of the report.
      - Specify the boundaries or limits of your investigation.
    - Procedure statement(Methodology statement)
      - Explain all actions you took: the people you interviewed, the research you performed, the sources you consulted.
      - Write this statement in the *past tense.*
      - Select head for each section
    - Background statement

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INTRODUCTION

Purpose

Two-part purpose: to present and to recommend

This proposal presents the results of the Human Resources Department's investigation of spousal employment assistance programs and recommends that XYZ Corp. implement such a program.

Scope

Lists topics covered in the report

This report details the problems caused by the lack of a spousal employment assistance program. It then considers the concerns of establishing such a program here at XYZ. These concerns include a detailed description of the services offered by such an office, the resources necessary to accomplish the task, and an analysis of advantages, costs, and benefits. An implementation schedule is included.

(Continued)

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17

Procedure

Enough information given to establish credibility

The Human Resources Department gathered all the information for this report. We interviewed all 10 people (8 women and 2 men) hired within the past 12 months and 6 spouses (4 men and 2 women). We gathered information from professional articles on the subject. The human resources office provided all the salary and benefits figures. We also interviewed the director of a similar program operating in Arizona and a management training consultant from McCrumble University.

Problem

Background (cause)

Basic facts

Source of impetus to solve problem

Possible solution

In the past year, XYZ has expanded swiftly, and this expansion will occur throughout the near future. In the past year, ten new management positions were created and filled. Seven of these people moved here from out of state. Several of these people approached the Human Resources Department for assistance with the problems involved in relocating.

Some of these problems were severe enough that some decline in productivity was noted and was also brought to the attention of Human Resources. Four of the managers left, citing stress as a major reason. That turnover further affected productivity. A spousal employment assistance office is one common way to handle such concerns and offset the potential bad effects of high turnover.

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Figure 12.6 Introduction Example

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Elements of formal reports

- Front material (cont.)
  - 6. Conclusions and Recommendations
    - Writers may place these two sections at the beginning of the report or at the end.
    - Choose the beginning if you want to give readers the main points first and if you want to give them a perspective from which to read the data in the report.
    - Choose the end if you want to emphasize the logical flow of the report, leading up to the conclusion.
    - In many formal reports, you present only conclusions because you are not making a recommendation.

19

19

Elements of formal reports

- Front material (cont.)
  - Conclusions and Recommendations
    - Conclusions
      - Relate each conclusion to specific data. Don't write conclusions about material you have not discussed in the text.
      - Use concise, numbered conclusions.
      - Keep commentary brief.
      - Add inclusive page numbers to indicate where to find the discussion of the conclusions

20

20

Conclusions presented in same order as in text

This investigation has led to the following conclusions. (The page numbers in parentheses indicate where supporting discussion may be found.)

1. The stresses experienced by the new hires are significant and are expected to continue as the company expands (6).
2. Stress is not related to job difficulties but instead is related more to difficulties other family members are experiencing as a result of the relocation (6).
3. Professionals exist who are able to staff such programs (7).
4. The program will result in increased employee morale, increased job satisfaction, and greater company loyalty (9).
5. A program could begin for a cost of $54,000 (10).
6. The major benefits of the program will be increased productivity of the management staff and decreased turmoil created by frequent turnover (11).
7. A program would take six months to initiate (13).

Figure 12.8 Conclusions

ELEMENTS OF FORMAL REPORTS

- Front material (cont.)
  - 6. Conclusions and Recommendations
    - Conclusions
    - Recommendations
      - Number each recommendation.
      - Make the solution to the problem the first recommendation.
      - If the rationale section is brief, add it to the appropriate recommendation.
      - If the rationale section is long, make it a separate section.

Solution to the basic problem

Other recommendations on implementation

1. XYZ should implement a spousal employment assistance program. This program is feasible and should eliminate much of the stress that has caused some of the personal anxiety and productivity decreases we have felt with the recent expansion.
2. The Executive Committee should authorize Human Resources to begin the procedure of writing position guidelines and hiring an SEA counselor.

ELEMENTS OF FORMAL REPORTS

- 2. Body of the formal report
  - Pagination
  - Indicating chapter divisions
  - Laying out pages (ch 6 covers different column formats)

23

23

ELEMENTS OF FORMAL REPORTS

- Body of the formal report
  - Paginating
    - Assign a number to each piece of paper in the report, regardless of whether the number actually appears on the page.
    - Assign a page number to each full-page table or figure.
    - Place the numbers in the upper right corner of the page with no punctuation, or center them at the bottom of the page either with no punctuation or with a hyphen on each side (-2-).
    - Consider the title page as page 1. Do not number the title page. Most word processing systems allow you to delete the number from the title page.
    - In very long reports, use lowercase roman numerals (i, ii, iii) for all the pages before the text of the discussion. In this case, count the title page as page i, but do not put the i on the page. On the next page, place a ii.
    - Paginate the appendix as discussed in "End Material" (later).
    - Use headers or footers (phrases in the top and bottom margins) to identify the topic of a page or section.

24

24

ELEMENTS OF FORMAL REPORTS

- Body of the formal report
  - Paginating
  - Use Chapter Divisions
    - To make the report "more formal," begin each new major section at the top of a page (see Example 12.2, which starts on p. 373).

25

25

ELEMENTS OF FORMAL REPORTS

- End Material: The end material (glossary and list of symbols, references, and appendixes) is placed after the body of the report.
  - Glossary and List of symbols
    - Place each term at the left margin, and start the definition at a tab (two or three spaces) farther to the right. Start all lines of the definition at this tab.
    - Alphabetize the terms
  - References
    - The list of references (included when the report contains information from other sources) is discussed along with citation methods in Appendix B.
  - Appendix
    - Refer to each appendix item at the appropriate place in the body of the report.
    - Number illustrations in the appendix in the sequence begun in the body of the report.
    - For short reports, continue page numbers in sequence from the last page of the body.
    - For long reports, use a separate pagination system. Because the appendixes are often identified as Appendix A, Appendix B, and so on, number the pages starting with the appropriate letter: A-1, A-2, B-1, B-2.

26

26

TECHNICAL WRITING
PROPOSALS

1

Instructor:
Dr. Mohammad Abdel-Majeed

1

PROPOSALS

- Four issues to discuss in a proposal :

- 1.The *problem*
- 2.The *solution*
- 3.The *benefits* of the solution
- 4. The *implementation*

2

2

The Internal Proposal

- The internal proposal persuades someone to accept an idea—usually to change something, or to fund something, or both
- Requesting new pieces of lab equipment, defend major capital expenditures, or recommend revised production control standards.

3

3

A. Planning The Internal Proposal

- Readers of a proposal either have assigned the proposal and are aware of the problem.
- or have not assigned the proposal and are unaware of the problem.
- To achieve this goal, the writer must:
  - 1. Consider the audience.
  - 2. Use visual aids.
  - 3. Organize the proposal well.
  - 4. Design an appropriate format.

4

4

1. Consider the Audience

- Readers of a proposal either have assigned the proposal and are aware of the problem or have not assigned the proposal and are unaware of the problem.
- The audience may or may not know the concepts and facts involved in either the problem or the solution. Estimate your audience's level of knowledge.
- The audience may or may not be able to order the implementation of your proposed solution. So the writer must bear in mind that several readers may see and approve.

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2. Use Visual Aids

- Visuals can support any part of the proposal—the description of the problem, the solution, the implementation, and the benefits.
- Visuals include tables, graphs , Gantt charts , and diagrams.

6

6

3. Organize the Proposal

- The writer should organize the proposal around four questions:
- 1. What is the problem?
- 2. What is the solution?
- 3. Can the solution be implemented?
- 4. Should the solution be implemented?

7

7

4. Design the Proposal

- select an appropriate format, either *formal* or *informal.*
- A formal proposal has a title page, table of contents, and summary (see Chapter 14).
- An informal proposal can be a report or some kind of preprinted form (see Chapter 12).
- The format depends on company policy and on the distance the proposal must travel in the hierarchy
- the shorter the distance, the more informal the format.
- the less significant the proposal, the more informal the format.

8

8

B. Writing the Internal Proposal

- Use the Introduction to Orient the Reader,
- The introduction to a proposal demands careful thought because it must orient the reader to the writer, the problem, and the solution.
- The introduction can contain one paragraph or several. You should clarify the following important points:
  - Why is the writer writing? Is the proposal assigned or unsolicited?
  - Why is the writer credible?
  - What is the problem?
  - What is the background of the problem?
  - What is the significance of the problem?
  - What is the solution?
  - What are the parts of the report?
- An effective way to provide all these points is in a two-part introduction that includes a context-setting paragraph and a summary.

9

9

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  - What is the significance of the problem?
  - What is the solution?
  - What are the parts of the report?
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10

INTRODUCTION

DATE: April 8, 2006
TO: Jennifer Williamson
FROM: Steve Vinz
Mike Vivoda
Michele Welsh
Marya Wilson
SUBJECT: Installing new parking lot signs

Reason for writing: sets context

Parking on campus has been a topic of many discussions here at West Central University and one of much concern. The topics on parking include what lots students are able to park in, when students can park in the lots, and the availability of parking on campus. We believe that students do not know exactly when and where they can park in the campus lots because of the vague and confusing signs.

Summary

We feel that the school should post at each entrance new, more informative, and more readable signs containing all the rules and regulations. These signs would say exactly who can and cannot park in the lot, the times when the lots are patrolled, and what type of permit is needed. The project could be completed in five weeks and would cost $13,892.16. Major benefits include fewer administrative hassles and happier university community members. This report will first discuss the problem, then the solution, implementation, and the benefits.

Preview of sections

11

11

B. WRITING THE INTERNAL PROPOSAL

- Use the Discussion to Convince Your Audience .
- A common approach functions this way:
- The problem
- ◗ ◗ Explanation of the problem
- ◗ ◗Causes of the problem
- The solution
- ◗ ◗Details of the solution
- ◗ ◗Benefits of the solution
- ◗ ◗Ways in which the solution satisfies criteria
- The context
- ◗ ◗ Schedule for implementing the solution
- ◗ ◗ Personnel involved
- ◗ ◗ Solutions rejected

12

12

- P 43

Example 14.1
Internal Proposal

Date: November 7, 2013
To: George Schmidt, Chief Engineer
From: Greg Fritsch, Assistant Engineer
Subject: Unnecessary shearing from joint welds

After talking to you on the phone last week, I mentioned that the Block Corporation is having difficulties with shearing on their engine mount supports. I contacted Mr. Jackson, a research expert, who said the stress from the weight of the engine causes the weld to shear. The shearing then causes the motor to collapse onto the engine mount supports. He advised me to purchase a higher-tensile-strength weld. The new weld I propose will reduce the defect rate from 10% to 0%. This report includes the following information: weld shearing, weld constraints, and shearing solution.

WELD SHEARING

Unnecessary weld shearing of the engine mount supports has been a problem for the Block Corporation since 2010. The company is suffering a 10% defective rate on every 100 engine mounts welded.

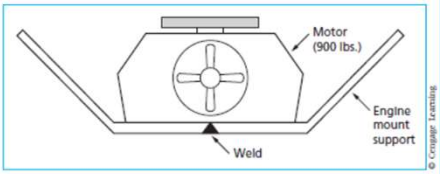

Figure 1:
Engine Mount Weld

As seen in Figure 1, the weld must hold together when 900 lbs. of force are applied to the motor mount supports. A quality weld with a high tensile strength should withstand temperature fluctuation without shearing.

(Continued)

13

13

WELD CONSTRAINT

The Block Corporation listed the following constraints for implementing a new weld:

1. Material costs must increase by less than .01¢ per engine mount support welded.
2. Welding machines must not exceed 240 volts.
3. Current welding machines have to be used.
4. Each electrical outlet has to have a separate transformer.

SHEARING SOLUTION

The solution to the company's problem is to implement a higher-tensile-strength weld. The weld is projected to increase material and electrical costs, but is not expected to exceed the company's 1% budget increase for the 2013 fiscal year.

Cost

New welding wire with a higher tensile strength will increase 2¢ for every 100 yards of wire. All engine mount welds require three yards of wire to secure a solid weld. The overall cost increase per engine mount welded will be only .006¢.

Voltage

There will be an increase in the amount of electricity used in the new welding process. The welding machines will be required to switch from 120 to 240 volts.

Use of Current Machines

The welders will use the same welding machines as in the past. The welding machines are compatible with the new welds and do not need to be replaced.

Separate Transformers

An electrical hookup from 120 to 240 volts will be needed at each electrical outlet. A transformer will be required at each individual box to ensure an increase in voltage flow.

14

14

EXAMPLE 2

Example 14.2
Internal Proposal

REPLACEMENT OF PRESENT SINGLE-PHASE VENTILATION MOTOR WITH A NEW THREE-PHASE INDUCTION MOTOR

INTRODUCTION

The purpose of this report is to inform you of the inadequacies of the present ventilation system, and the benefits of replacing the current motor. In this report

I will first give you a quick summary of the proposal, followed by the necessary background information required. I will then discuss in detail the following: the problems with the present system, the proposed solution to correct the problem, the implementation of the new system, the rationale behind the decision, followed by the conclusion.

Summary of Proposal

The problem in the ventilation system came to light during a routine inspection. I noticed the following problems with the present system:

1. Insufficient air flow at the southern end of plant
2. Current motor wastes too much electricity

The combination of these two problems creates both an unsafe and an inefficient system. Fortunately, the solution is quite simple and inexpensive. To correct the problem, the present single-phase motor in the system must be removed and replaced with a new three-phase induction motor. This new motor will not only correct the problems of the present system, it will also produce the following benefits:

1. Longer life.
2. Decreased power factor.
3. Expandability.
4. Minimal downtime at installation.

Background Information

One must know the difference between a single-phase and a three-phase motor. A single-phase motor runs on only one electrical phase, but requires additional starting circuitry. Three-phase motors, on the other hand, require all three electrical phases, but do not need any starting circuitry. It is also important to know that the amount of air flow in a system is measured in cubic yards per hour.

DISCUSSION

This section covers problems with the present system, a proposed solution, implementation of the new system, rationale, and benefits of the system.

Problems with the Present System

Air Flow The main problem with the present ventilation system is that it is unable to produce enough air flow to the southern end of the plant. During my inspection, I took various measurements of air flow throughout the plant using an air flow meter. I noticed that the southern end is receiving only 1800 cubic yards ventilation an hour. OSHA standards require that 2000 cubic yards must be replaced every hour. If this situation is not corrected, we may be endangering the well-being of our employees, not to mention being slapped with a possible fine from OSHA. After closer examination of the ventilation system, I discovered

(Continued)

that the only thing wrong with the system is the motor driving the fan. The motor is old and worn out, and therefore unable to produce the necessary air flow.

Electrical Consumption The other problem with the present system is its abnormally high power-consumption, which I discovered while taking measurements on the present motor with a digital VOM meter. With these measurements, I calculated that the motor is running at only 50% peak efficiency. An average three-phase induction motor runs at approximately 90% peak efficiency. Over the course of a year, the company loses about $900 from the inefficiency of the present motor.

Proposed Solution

After careful analysis of all information, I have come to the following conclusion: replace the present single-phase motor in the ventilation system with a new three-phase induction motor. A new three-phase motor will not only increase air flow, it will also do it more efficiently.

Air Flow If a three-phase induction motor were installed in place of the single-phase motor, it would increase air flow by almost 20%. I calculated this by using the torque and speed characteristics of a three-phase motor. This would boost the air flow to the southern end of the plant from 1800 cubic yards to over 2100 cubic yards per hour. This is well within OSHA standards.

Electrical Consumption One of the biggest advantages of a three-phase motor over a single-phase motor is the efficiency. An average new three-phase motor can run at up to 90% efficiency. An average single-phase motor of the same horsepower could achieve only 80% efficiency at best. The more efficient a device, the less expensive it is to run. See Figure 1.

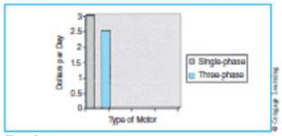

Figure 1:
Electrical Running Cost of a Single-Phase Motor versus a Three-Phase Motor

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As you can see from this figure, a three-phase motor requires much less electricity to run per day than the single-phase motor. The reason a three-phase is more efficient than the single-phase motor is that it needs no additional starting circuitry. The addition of this starting circuitry in a single-phase motor is what robs it of maximum efficiency.

Implementation of the New System

The installation of a new three-phase induction motor should pose no problems. In this section, I will concentrate on the main aspects of installation: cost, time, and inconvenience.

Cost The overall cost of replacing and installing the new motor should not exceed $500. The motor and control box together are $300. The wiring must be done by a certified electrician and overall labor cost should not exceed $150. The remaining $50 will buy new motor mountings, brackets, and wire. A three-phase junction box is within 20 feet of the ventilation system and should pose no installation difficulties for the electrician.

Time The installation time from start to finish should be no more than five hours. It will take one hour for us to remove the old single-phase motor. Installing the three-phase motor should take no more than an hour and a half. The remaining hour would be used for cleanup work and initial start-up of the system. I received all of these time and cost figures from a certified electrician.

Inconveniences The new three-phase motor could be installed with only a few slight inconveniences, the most obvious of which is the shutdown of the ventilation system. This cannot be done during working hours, so it will have to be done on a Saturday. The labor costs I have stated earlier reflect the electrician's time-and-a-half rate imposed by working on the weekend. There is also the minor inconvenience of having someone here that Saturday to let the electrician into the building.

Rationale/Benefits

A three-phase induction motor in a ventilation system will provide three main benefits: longer life, decreased power factor, and expandability.

Longer Life If a three-phase induction motor were installed into the ventilation system, it would provide much longer life than an equivalent single-phase motor. This point is made clear in Figure 2.

As you will notice from Figure 2, a three-phase motor will last much longer than will a single-phase motor doing the same task. The reason for this is the simplicity of operation of a three-phase motor; the single-phase requires starting circuitry, which has a tendency to break down more quickly.

(Continued)

18

18

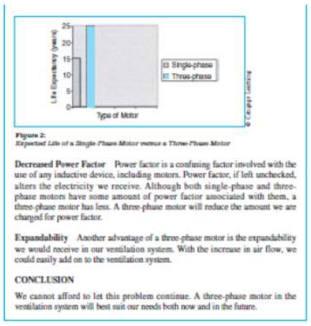

Figure 2:
Expected Life of a Single-Phase Motor versus a Three-Phase Motor

Decreased Power Factor Power factor is a confusing factor involved with the use of any inductive device, including motors. Power factor, if left unchecked, alters the electricity we receive. Although both single-phase and three-phase motors have some amount of power factor associated with them, a three-phase motor has less. A three-phase motor will reduce the amount we are charged for power factor.

Expandability Another advantage of a three-phase motor is the expandability we would receive in our ventilation system. With the increase in air flow, we could easily add on to the ventilation system.

CONCLUSION

We cannot afford to let this problem continue. A three-phase motor in the ventilation system will best suit our needs both now and in the future.

19

19

EXAMPLE 3

Example 14.3
Non Profit
Grant Proposal

Description of Organization
Based in the Seward neighborhood, the Alliance for Metropolitan Stability is a coalition of organizations advocating for public policies that promote equity in land use. Our mission is to engage communities in eliminating racial, environmental, and economic disparities in growth and development patterns in the Twin Cities metropolitan area.

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The Alliance was formed in 1994, in the realization that true stability for the Twin Cities could only be achieved through a comprehensive approach to regional problems. We have 20 member groups and dozens of allied organizations that unite under the recognition that our regional problems are linked through significant intersections of issues, people, and places. Our partners are representatives of:

- Geography-based organizations, such as neighborhood groups.
- Low-income communities and communities of color.
- Faith-based organizations.
- Issue-based organizations, such as environmental, energy, land-use, affordable housing, and transit groups.
- The organized labor community.

We serve the seven-county Twin Cities metro area, with a specific interest in serving low-income people and communities of color.

How a Grant from Seward Co-op Would Be Used

The Alliance's goal is to build strategic, cross-sector partnerships that advance sustainable and equitable approaches to Twin Cities land use and development. This requires that we work closely with large groups of community organizers, leaders, citizens and public officials to build consensus and move collectively toward more equitable public policies for the community and the environment. As a coalition of grassroots organizations, a significant part of the Alliance's work is to host community meetings, forums, organizer roundtables and trainings.

The Alliance likes to purchase food and beverages for these meetings from cooperatives and restaurants that are committed to using locally sourced and organic foods whenever possible. We further demonstrate our commitment to promoting environmental sustainability and local economic development by purchasing from local businesses, such as the Seward Co-op Grocery & Deli.

Our forums and community meetings not only support local businesses and sustainable agriculture, they focus on topics that build community and contribute to the overall sustainability of the Twin Cities and the Seward Neighborhood. Recent topics have included:

- Communicating the value of grassroots organizing.
- Wealth creation in communities of color.
- Blue/green jobs (linking the labor community to the environmental community).
- Environmentally sustainable affordable housing.
- Connecting the racial and environmental justice movements.
- Legislative report card on racial justice.

We expect to host even more events in late 2008 and early 2009, as we are organizing a series of meetings that will bring together all the organizations associated with the regional equity movement in the Twin Cities, including neighborhood, environmental, racial justice, transit, affordable housing, economic justice, labor, and faith-based organizations. A contribution from the Seward

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Co-op Grocery & Deli would support these important events that bring together grassroots organizations together to build power around issues of racial, environmental and economic justice.

How a Grant Would Support Seward Co-op's Mission

The Alliance believes that all socially responsible businesses and organizations have a responsibility to play a role in promoting sustainability and local economic development—not only through their missions, but through their actions. That's why we are committed to buying local and organic whenever possible.

In addition, we regularly bring groups of community-minded individuals into the Seward neighborhood for in-house meetings and meetings in community spaces. Each year, hundreds of our project participants learn about local community and economic development initiatives, grassroots organizing for social change, and environmentally sound lifestyle choices through participation in our projects and meetings.

We know that leading by example is the most practical and useful way to inspire our partners to make commitments to buying sustainable products from local businesses.

Dollar Amount of the Alliance's Request

The Alliance was very grateful to receive a grant of $500 from the Seward Co-op in 2007 to support our commitment to providing local and organic foods at our meetings. So far in 2008, we have already spent more than $1,400 toward this purpose.

We request a grant of $1,000 from the Seward Co-op to support these efforts in 2008. A grant from the co-op would be matched dollar-for-dollar through a matching grant challenge from the McKnight Foundation.

Thank you for your support of the Alliance for Metropolitan Stability.

22

PRESENTATION

1

1

2

presentation

Power Point/software

Oral Report

The importance of power point is that most oral reports are now called " Power point reports".

2

3

A. Planning The presentation

Planning includes decisions about:

- 1. Audience
- 2. The situation
- 3. Organizational pattern
- 4. Presentation

3

4

1. Plan for your audience

EXAMPLE of different audiences:

A presentation for 3 managers deciding to do business with you.

Or a presentation for 50 sales reps that need to know about the product they want to sell.

4

5

Plan for your audience

The Audience Analysis Questions

- Who are they?
- How many will be present?
- What is their knowledge level?
- What task will my presentation help them complete?
- What do they need?
- Why are they there?

6

Plan for your audience

The most annoying issue in power point presentation is " The speaker reads the slides to us".

Also:

- Using full sentences rather than brief.
- Projecting too small text to read.
- Colors that are hard to read.
- Using very complex illustrations.

7

2. Plan for the situation

- Size of the room (i.e: Small room with a conference table , Auditorium)
- Location of electrical outlets
- Learn how sound carries through the room (i.e: to use a microphone or not)
- Should you bring your laptop or only a disk/flash memory with you?
- Learn to hook your laptop with the projector in case your brought it with you.

7

8

3. Plan your organizational Pattern

- Depending on the :
- Needs of the audience
- Actual content to be represented

8

9

The Story approach

It is a sequence of events and cause and effect and also shows the priority of the events.

The story approach has three stages:

- Set the stage
- Introduce the dramatic conflict
- Resolve the conflict

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Story approach: Set the stage

Defining current situation by analyzing factors such as:

- Market forces
- Company objectives
- Technological changes

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Story approach: Introduce the dramatic conflict

Introduce challenges that face the company , such as:

- Obstacles
- New competitors
- Market share losses

11

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Story approach: Resolve the conflict

How to overcome the obstacles to win by reversing the situation of the issues?!

12

13

Goal-Method-Results-Discussion approach

You decide which of the sections is most important and minimize other sections based on the audiences' needs.

14

4. Plan your presentation

- 4.1 Determine your relationship to the slides
- 4.2 Create a storyboard
- 4.3 Create the series of slides

15

4.1 Determine your relationship to the slides

- Who is in charge? You or the slides?
- Who is the main source of information? You or the slides?
  - The slide is not the main source of information in the speech—you are. You place the content of the slide into a relevant context for the audience
  - two aspects of your relationship:
  - Is the information on the slide in the foreground or background?
  - What items should be on the slide?

15

16

Foreground or Background?

A **Foreground** method provides information,

either visual aid or textual, that you explain. Project a visual aid in order to explain it or Project a text in order to emphasize it.

(YOU SPEAK TO THE SLIDE)

16

17

Foreground or Background?

- In the **Background** method, you don't speak to the slide. Instead it is present in order to summarize key points, either what is about to be covered or what has just been covered.

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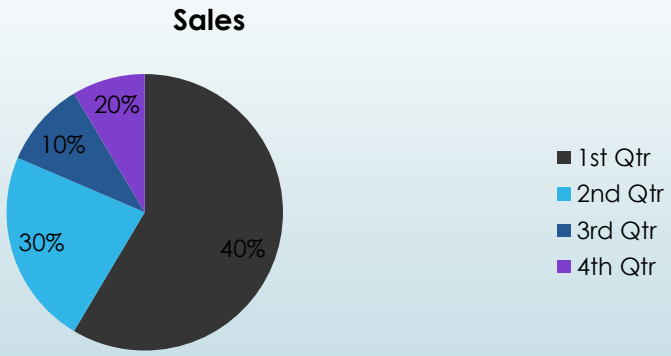
Foreground Example



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19

Background Example

Planning the presentation

- Plan for your audience
- Plan for the situation
- Plan your organizational pattern
- Plan your presentation

19

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What should be on the slide

How to make slide look good and easy accessible to the listeners?

We will focus in the content of the slide images and text content.

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Content presented by image

- Put images into the foreground take more time .

But pays dividends in audience retention and interest

- Point out the audience what they should see in the image and why.

21

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To use predominantly image you have to answer

What strategy will best engage the audience with the image?

There are seven suggestions:

22

23

1. Assertion evidence structure

In this strategy the title is a one sentence that states what you want the audience to know as a result .

The body of slides consist visual evidence.

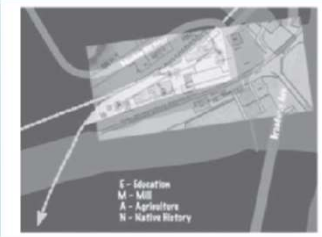
Photograph ,table ,graph ,screen capture ,equation.

24

2. context

Give the viewer big picture so that the small details make sense for instance map.

Is an illustration of what you are talking about.



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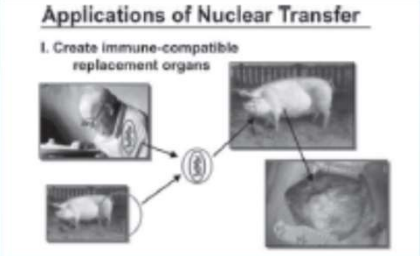
3. Example

Is an illustration of what you are talking about.

Use this strategy so that the audience does not have to read your mind.



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4. Reduced learning time

An Image can help a viewer access the complexities of process.

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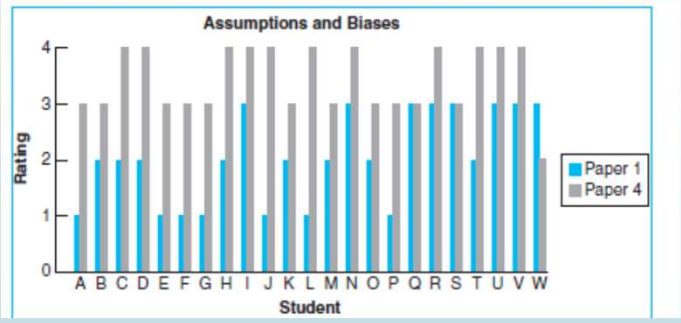
5. Comparison contrast

Images can show the difference between two objects ,especially new concept .



28

6. Analogy

An analogy helps the person connected to something new.

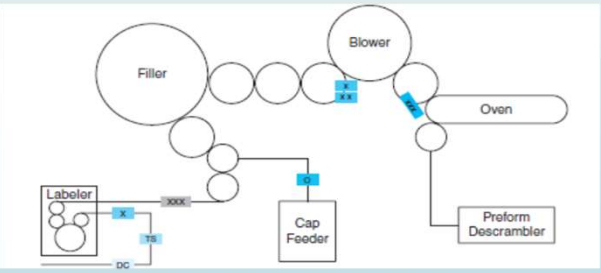
To navigate from one position to another you have to have a good idea of where you are and where you hope to go. Displaying a map help audiences use this concept.

Figure 16.10 Slide Uses Analogy

29

7. Demonstrate a process

A process has a sequence of steps illustrate what happens at each slide and explain the action .



29

30

Content presented by text

- Text-only slides are outlines, lists of words arranged in a hierarchy.
- They project very little depth or indication of relationship of ideas.
- this method has limitations especially in the audience's retention of ideas and in their level of interest
- don't read the slides to the audience. Follow these suggestions
- 1. Use text as an introductory overview
- 2. Use the text as a topic introductions
- 3. Give audiences time to read the slide to themselves
- Use a paper handout it can more effectively show complex text, numbers ,and data graphics

30

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4.2 Create a storyboard

- A storyboard: is a text and graphics outline of your presentation
- Variations of storyboard also exist in presentation programs
- (power point) has both an outline and a slide sorter function that allow you to see the entire sequence of your presentation

31

32

Topic	Visual Aid
Introduction	
Source of assignment	
Recommendation	List of recommendations
Preview	Outline of main topics
	List of main methods for each type (use of a two-column slide)
Section 1	
Method of researching	Cross-sectional view
Section 2	
Three types of laminates	
Advantages of each	List of advantages
Section 3	
Cost	Table of costs
Conclusion	
Summary	

32

33

4.3 Create the slides

- Guidelines for create pleasing slides:
- *Understand the parts of a slide:*
  - *title,the text or graphics, the footer, and the background.*
  - The title appears at the top in largest size to identify the content of the slide
  - The text makes the points you want to highlight

33

34

Create the slides

  - The graphics consist of a table,chart,or drawing
  - The footer contains date, slide numbers, and other pertinent information
  - The background is the color or design appears behind the text or graphics
- *Design the slide to help the reader*
  - The major rules of slide design are make the content big enough :it is easy to read from a distance

34

35

Create the slides

- Keep it simple :the slide has no extraneous “fluff” like odd colors ,lines ,or images that detract listeners from content
- Be consistent: each item of the same type is presented in the same way
- Learn to use slide master If you select a template and then use the slide master, you guarantee consistency for font, font size, font color, background, and bullet type
- Evaluate template before using them
- Title each slide

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Create the slides

- Fonts: keep your text font simple its can portray a wide range of emotions from casual to authoritative from serious to comic
  - Use known fonts
  - Use one font
  - Use larger size and different color for the title

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37

Overcoming Challenges

- Sources for $$$
- Scheduling time
- Access to excellent students
- Expectations of students
- Training for independence
- Peer mentoring
- Research Services

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38

Line Length in Visuals

- Many texts encourage using no more than seven lines and limiting lines to seven words.
- It is more helpful to think about whether you want the audience to read a long quote or to present a group of short lines, summarizing what you are saying
- Shorter text lines keep the words in the background as you speak, focusing attention on you.

38

39

Colors

- Use color to enhance your presentation
- Consider the setting
- Use color intelligently to establish visual logic. Use one of the software's templates and it creates the logic for you.
- Use green and red sparingly
- Avoid hard-to-read color combinations such as yellow on white and black on blue. Violet can also be very hard to read.
- Select combinations with an awareness of technology

40

Animation

- Animation makes items move , Text can appear and depart from the slide by many routes—move to the left or right, up or down, or disintegrate blossom out from the center
  - Use one type of text animation
  - Treat previous lines carefully. Fading or subduing the previous bullets when the new information appears will help to keep the audience focused.
- Use builds You can make a build, a sequence of slides that change the visual slightly, each time adding a bit more information.

41

Sound Effects

- Basically, don't use sound effects .If you do use them
  - be consistent (use the same one for the same operation such as introducing an new topic)
  - Be subtle
    - Bullets sound .Use a quiet sound

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Slide Transitions

- Slide transitions, like scene cuts in a movie, move an old slide off and a new slide onto the screen.
- The goal of using this device is to create a sequence logic—each instance of the event means that another type of data is about to appear.
  - Be consistent
  - Use only one or two simple transitions
- Aid the viewer. a simple fade-to-black between sections of a presentation signals that a new topic is being considered.

43

Making an Effective Presentation(1)

- Learn to dance with your slides

43

44

Making an Effective Presentation(2)

- Develop the Introduction
  - Keep the introduction short
  - Explain your credibility
  - Indicate your special knowledge of or concern with the subject.
  - Explain why your report is important to your audience.
  - Identify the situation that required you to prepare the report (or the person who requested it).
  - Present your conclusions or recommendations right away. Then the audience will have a viewpoint from which to interpret the data you present.
  - Preview the main points so your listeners can understand the order in which you will present your ideas.

44

45

Making an Effective Presentation(3)

- Navigate the Body
  - Use Transitions Liberally (idea transition)
  - Emphasize Important Details
  - Impose a Time Limit
    - Find out how long the audience expects the presentation to last and fit your speech into that time frame

46

Making an Effective Presentation(5)

- **Rehearse Your Presentation**
  - Practice your presentation
  - Practice Developing a Conversational Quality
    - Rehearse until you feel secure with your presentation
  - practice Handling Your Technology and Visual Aids
    - Understand how to open and navigate your presentation
    - Have a backup plan in case your technology does not work
      - Bluetooth, memory stick

47

Making an Effective Presentation(4)

- **Develop a Conclusion**
  - Keep the conclusion short.
  - Announce as “In conclusion”, “In summary”
  - Takeaway points

47

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Advanced Of Presentation

- **Use the B Key**

At points during your presentation, and especially during a question/answer session, you can ‘turn off’ the screen, by pushing the b key.

- **Note**

If you have paper handouts, decide whether to distribute them before or during the presentation

48

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Deliver Your Presentation

- Use Notes
- Adopt a Comfortable Style
  - you can direct your attention to the listeners, referring to the outline only to jog your memory and to ensure that ideas are presented in the proper order.
  - Smile.
  - Take time to look at individual audience members and to collect your thoughts.
  - check whether members of the audience understood your last point.

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50

Suggestions will help as you face your listeners and deliver the presentation

- Look directly at each listener at least once during the report.
- Make sure you can be heard
- When answering questions, make sure everyone hears and understands each question before you begin to answer it be heard, but also try to speak conversationally
- To point out some aspect of a visual projected lay a pencil or an arrow made of paper on the appropriate spot of the transparency.
- Try to become aware of—and to eliminate—your distracting mannerisms. one wants to see speakers brush their hair, scratch their arms, rock back and forth on the balls of their feet, smack their lips.

50

Technical Writing
Job application materials

1

Instructor:
Dr. Mohammad Abdel-Majeed

1

Job Application Material

- Letter of Application
- Resume
- Interview

2

2

Letter Of Application

- Address of the sender
- Date
- Inside Address
- Salutation
- Body
- Closing and Signature

3

3

Step 1: Analyzing The Situation

- To write an effective résumé and letter application you must understand:
  - Your goals
  - Your audience
  - The field in which you are applying for work
  - Your own strengths
  - The needs of your employers.

4

4

Step 1: Analyzing The Situation

- Understand your goals
  - Show that your strengths fill the readers needs
  - Get an interview
  - Provide topics for discussion at the interview
  - If you present your strengths and experiences **convincingly** in the letter and résumé, prospective employers will ask to interview you
    - explain what you can do for the reader, showing how your strengths fill the reader's needs

5

5

Step 1: Analyzing The Situation

- Understand your audience
  - Human resources manager to division manager
  - They have limited amount of time
  - They want to know if the applicant satisfy the company needs
  - Skill Expectations: They look for evidence (Jobs, Achievements at work)
  - Professional expectations:
    - Managers read to see if you write clearly, handle details, and act professionally.
    - Clean, neat documents written in clear, correct English and formatted on high-quality paper demonstrate all three of these skills.

6

6

Step 1: Analyzing The Situation

- Assess your field
  - What are the basic activities in this field?
  - What skills do I need to perform them?
  - What are the basic working conditions, salary ranges, and long-term outlooks for the areas in which I am interested?

7

7

Step 1: Analyzing The Situation

- Assess your strengths
  - Seeks Qualifications that distinguish you from others
  - Do not exclude Experiences
  - Questions page 523 textbook

8

8

1. What work experience have you had that is related to your field? What were your job responsibilities? In what projects were you involved? With what machinery or evaluation procedures did you work? What have your achievements been?
2. What special aptitudes and skills do you have? Do you know advanced testing methods? What are your computer abilities?
3. What special projects have you completed in your major field? List processes, machines, and systems with which you have dealt.
4. What honors and awards have you received? Do you have any special college achievements?
5. What is your grade point average?
6. How have you paid for your college expenses?
7. What was your minor? What sequence of useful courses have you completed? A sequence of three or more courses in, for example, management, writing, psychology, or communication might have given you knowledge or skills that your competitors do not possess.
8. Are you willing to relocate?
9. Are you a member of a professional organization? Are you an officer? What projects have you participated in as a member?
10. Can you communicate in a second language? Many of today's firms are multinational.
11. Do you have military experience? While in the military, did you attend a school that applies to your major field? If so, identify the school.

9

9

Step 1: Analyzing The Situation

- Assess needs for employers
  - Study the needs of your potential employers
  - Review their website (names)

10

10

Planning The Resume

- Information to include in the resume
  - Personal information: name, address, phone number
  - Educational information: degree, name of college, major, date of graduation
  - Work history: titles of jobs held, employing companies, dates of employment, duties, a career objective
  - Achievements: grade point average, awards and honors, special aptitudes and skills, achievements at work (such as contributions and accomplishments)

11

11

Planning The Resume

- Resume organization
  - Personal data
    - Address, phone #, references
  - Career objective
    - Position you are seeking
  - Summary
  - Education
    - Most recent at the top
    - Relevant courses, honors, extracurricular activities, internships
  - Work experience
    - Most recent and relevant first
    - Title, description, company name and dates

12

12

Writing The Resume

- Drafting your résumé includes generating, revising, and finishing it.
- Guidelines
  - Usually limit the résumé to one page.
  - Indicate the main divisions at the far left margins. Usually, boldface heads
  - announce the major sections of the résumé.
  - Boldface important words such as job titles or names of majors; use underlining sparingly.
  - Use bulleted lists, which emphasize individual lines effectively.
  - Single-space entries and double-space above and below. The resulting white space makes the page easier to read.
  - Control the margins and type size. Make the left margin 1 inch wide.
  - Use 10- or 12-point type.
  - Treat items in each section consistently. All the job titles, for example, should be in the same relative space and in the same typeface andsize.
  - Print résumés on good-quality paper

13

Planning a Letter of Application

- Analyze the employer's needs
- Match Your Capabilities to the employer's needs

14

Writing a Letter of Application

- Apply in the Introduction
- Convince in the Body
- Request an Interview

15

15

Interviewing

- Prepare well
  - Investigate the company
  - Analyze how you can contribute to it (Spinks and Wells).
  - Investigate the company, consult their website, read their Facebook page, perhaps sign up to follow them on Twitter. For a more in-depth look,
  - assess what you have to offer.
  - Answer these questions:
    - What contributions can you make to the company?
    - How do your specific skills and strengths fit into its activities or philosophy?
    - How can you further your career goals with this company?

16

16

INTERVIEWING

- Use social tact
  - Behave professionally and in an appropriate manner. Acting too lightly or too intensely are both incorrect.
  - First impressions are extremely important; many interviewers make up their minds early in the interview.
  - Follow a few common sense guidelines:
    - Shake hands firmly.
    - Dress professionally, as you would on the job.
    - Arrive on time. Use proper grammar and enunciation.
    - Watch your body language. For instance, sit appropriately; don't lounge or slouch in your chair.
    - Find out and use the interviewers' names.

17

17

INTERVIEWING

- Perform well
  - Answer the questions directly and clearly. Interviewers want to know about your skills.
  - Be willing to talk about yourself and your achievements; if you respond honestly to questions, your answers will not seem like bragging.
  - For a successful interview, follow these guidelines:
    - Be yourself. Getting a job based on a false impression usually ends badly.
    - Answer the question asked. Be honest. If you don't know the answer, say so.
    - If you don't understand a question, ask the interviewer to repeat or clarify it.
    - In your answers, include facts about your experience to show how you will fit into the company.

18

18

INTERVIEWING

- Ask Questions
  - Methods of on-the-job training
  - Your job responsibilities
  - Types of support available—from secretarial to facilities to pursuit of more education
  - Possibility and probability of promotion
  - Policies about relocating, including whether you get a promotion when you relocate and whether refusing to relocate will hurt your chances for promotion
  - Salary and fringe benefits—at least a salary range, whether you receive medical benefits, and who pays for them

19

INTERVIEWING

- Understand the offer
  - You have the right to request a reasonable amount of time to consider the offer.
  - If you get another offer from a second company at a higher salary, you have the right to inform the first

20

IEEE Code of Ethics

IEEE Code of Ethics

- I. To uphold the highest standards of integrity, responsible behavior, and ethical conduct in professional activities.
- 1. to hold paramount the safety, health, and welfare of the public, to strive to comply with ethical design and sustainable development practices, to protect the privacy of others, and to disclose promptly factors that might endanger the public or the environment;
- 2. to improve the understanding by individuals and society of the capabilities and societal implications of conventional and emerging technologies, including intelligent systems;

- 3. to avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist;
- 4. to avoid unlawful conduct in professional activities, and to reject bribery in all its forms;
- 5. to seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, to be honest and realistic in stating claims or estimates based on available data, and to credit properly the contributions of others;
- 6. to maintain and improve our technical competence and to undertake technological tasks for others only if qualified by training or experience, or after full disclosure of pertinent limitations

IEEE Code of Ethics

- II. To treat all persons fairly and with respect, to not engage in harassment or discrimination, and to avoid injuring others.
- 7. to treat all persons fairly and with respect, and to not engage in discrimination based on characteristics such as race, religion, gender, disability, age, national origin, sexual orientation, gender identity, or gender expression;
- 8. to not engage in harassment of any kind, including sexual harassment or bullying behavior;
- 9. to avoid injuring others, their property, reputation, or employment by false or malicious actions, rumors or any other verbal or physical abuses;

IEEE Code of Ethics

- III. To strive to ensure this code is upheld by colleagues and co-workers.
- 10. to support colleagues and co-workers in following this code of ethics, to strive to ensure the code is upheld, and to not retaliate against individuals reporting a violation.
-

5

IEEE Code of Ethics

- Changes to the IEEE Code of Ethics will be made only after the following conditions are met:
- 1. Proposed changes shall have been published in THE INSTITUTE at least three (3) months in advance of final consideration by the Board of Directors, with a request for comment.
- 2. All IEEE Major Boards shall have the opportunity to discuss proposed changes prior to final action by the Board of Directors, and
- 3. An affirmative vote of two-thirds of the votes of the members of the Board of Directors present at the time of the vote, provided a quorum is present, shall be required for changes to be made.

6

Technical Writing Appendix A
Brief Handbook for Technical Writers

Instructor:
Dr. Mohammad Abdel-Majeed

1

A. Problems with Sentence Construction

- A.1 Identify and Eliminate Comma Splices
- Occurs when two independent clauses are connected, or spliced, with only a comma.
- Four ways to correct them
- 1. Replace the comma with a period to separate the two sentences.

Splice	The difference is that the NC machine relies on a computer to control its move-ments, a manual machine depends on an operator to control its movements.
Correction	The difference is that the NC machine relies on a computer to control its move-ments. A manual machine depends on an operator to control its movements.

2

A. Problems with Sentence Construction

- Four ways to correct them
- 2. Replace the comma with a semicolon only if the sentences are very closely related.
- When you use a conjunctive adverb to connect two sentences, always precede it with a semicolon and follow it with a comma. (furthermore)

Splice	The Micro 2001 has a two-year warranty, furthermore the magnetron is covered for seven years.
Correction	The Micro 2001 has a two-year warranty; furthermore, the magnetron is covered for seven years.

3

A. Problems with Sentence Construction

- Four ways to correct them
- 3. Insert a coordinating conjunction (*and, but, or, nor, for, yet,* or *so*) after the comma, making a compound.

Splice	The engines of both cranes meet OSHA standards, the new M80A has an additional safety feature.
Correction	The engines of both cranes meet OSHA standards, but the new M80A has an additional safety feature.

4

A. Problems with Sentence Construction

- Four ways to correct them
- 4. Subordinate one of the independent clauses by beginning it with a subordinating conjunction or a relative pronoun.
- Frequently used subordinating conjunctions are *where, when, while, because, since, as, until, unless, although, if,* and *after*.
- The relative pronouns are *which, that, who,* and *what*.

Splice	Worker efficiency will increase because of lower work heights, lower work heights maximize employee comfort.
Correction	Worker efficiency will increase because of lower work heights that maximize employee comfort.

5

A. Problems with Sentence Construction

- A.2 Identify and Eliminate Run-On Sentences
- The two independent clauses are run together with no punctuation between them
- ◗◗ Place a period between the two clauses.
- ◗◗ Place a semicolon between them.
- ◗◗ Place a comma and a coordinating conjunction between them.
- ◗◗ Place a relative pronoun or subordinating conjunction between them.

6

A. Problems with Sentence Construction

- A.3 Identify and Eliminate Sentence Fragments
- Sentence fragments are incomplete thoughts that the writer has mistakenly punctuated as complete sentences.
- fragments must be connected to the preceding or the following sentence.
- Subordinate clauses, prepositional phrases, and verbal phrases often appear as fragments.

7

A. Problems with Sentence Construction

- 1. Connect subordinate clauses to independent clauses.
- a. The fragment below is a subordinate clause beginning with the subordinating

Fragment We should accept the proposal. Because the payback period is significantly less than our company standard.

Correction We should accept the proposal because the payback period is significantly less than our company standard.

- b. The following fragment is a subordinate clause beginning with the relative pronoun which. Other relative pronouns are who, that, and what

Fragment The total cost is $425,000. Which will have to come from the contingency fund.

Correction The total cost of $425,000 will have to come from the contingency fund.

8

A. Problems with Sentence Construction

- 2. Connect prepositional phrases to independent clauses.
- The fragment below is a prepositional phrase. The fragment can be converted to a subordinate clause, as in the first example below, or made into an *appositive*—a word or phrase it. that means the same thing as what precedes.

Fragment	The manager found the problem. At the conveyor belt.
Correction 1	The manager discovered that the problem was the conveyor belt.
Correction 2	The manager found the problem—the conveyor belt.

A. Problems with Sentence Construction

- 3. Connect verbal phrases to independent clauses.
- a. Verbal phrases often begin with *-ing* words. Such phrases must be linked.

Fragment	The crew will work all day tomorrow. Installing the new gyroscope.
Correction	Tomorrow the crew will work all day installing the new gyroscope.

- b. Infinitive phrases begin with *to* plus a verb. They must be li
- nked to independent clauses.

Fragment	I contacted three vendors. To determine a probable price.
Correction	I contacted three vendors to determine a probable price.

A. Problems with Sentence Construction

- A.4 Place Modifiers in the Correct Position
- Sentences become confusing when modifiers do not point directly to the words they modify.
- Misplaced modifiers often produce absurd sentences; worse yet, they occasionally result in sentences that make sense but cause the reader to misinterpret your meaning.
- Modifiers must be placed in a position that clarifies their relationship to the rest of the sentence.

11

A. Problems with Sentence Construction

- 1. In the next sentence, *that is made of a thin, oxide-coated plastic* appears to refer to *the information*.

Misplaced modifier: The magnetic disk is the part that contains the information that is made of a thin, oxide-coated plastic.

Correction: The magnetic disk, which is made of a thin, oxide-coated plastic, is the part that contains the information.

12

A. Problems with Sentence Construction

- 2. In the next sentence, the modifier says that the horizontal position must be tested, but the meaning clearly is something different.

Misplaced modifier: Lower the memory module to the horizontal position that requires testing.

Correction: Lower the memory module that requires testing to the horizontal position.

13

A. Problems with Sentence Construction

- A.5 Use Words Ending in -ing Properly.
- Either a present participle or a gerund.
- Both types, which are often introductory material in a sentence, express some kind of action.
- They are correct when the subject can perform the action that the *–ing* word expresses.
- For instance, in the next sentence, the *XYZ computer table* cannot *compare* cost and durability.

Unclear: Comparing cost and durability, the XYZ computer table is the better choice.

Clear: By comparing cost and durability, you can see that the XYZ computer table is the better choice.

14

A. Problems with Sentence Construction

- A.6 Make the Subject and Verb Agree
- The subject and the verb of a sentence must both be singular or both be plural.
- Almost all problems with agreement are caused by failure to identify the subject correctly.

15

A. Problems with Sentence Construction

- A.6 Make the Subject and Verb Agree
- The subject and the verb of a sentence must both be singular or both be plural.
- Almost all problems with agreement are caused by failure to identify the subject correctly.

16

A. Problems with Sentence Construction

- A.6 Make the Subject and Verb Agree
- The subject and the verb of a sentence must both be singular or both be plural.
- Almost all problems with agreement are caused by failure to identify the subject correctly.

17

A. Problems with Sentence Construction

- 1.When the subject and verb are separated by a prepositional phrase, be sure you do not inadvertently make the verb agree with the object of the preposition rather than with the subject.
- In the following sentence, the subject *bar* is singular; *feet* is the object of the preposition *of*. The verb *picks* must be singular to agree with the subject.

Faulty	A bar containing a row of suction feet pick up the paper.
Correction	A bar containing a row of suction feet picks up the paper.

18

A. Problems with Sentence Construction

- 2. When a *collective noun* refers to a group or a unit, the verb must be singular.
- Collective nouns include such words as *committee, management, audience, union,* and *team*.

Faulty	The committee are writing the policy.
Correction	The committee is writing the policy.

19

A. Problems with Sentence Construction

- 3. Indefinite pronouns, such as *each, everyone, either, neither, anyone,* and *everybody,* take a singular verb.

Faulty	Each of the costs are below the limit.
Correction	Each of the costs is below the limit.

20

A. Problems with Sentence Construction

- 4.When compound subjects are connected by *or* or *nor,* the verb must agree with the nearer noun.

Faulty	The manager or the assistants evaluates the proposal.
Correction	The manager or the assistants evaluate the proposal.

A. Problems with Sentence Construction

- A.7 Use Pronouns Correctly
- A pronoun must refer directly to the noun it stands for, its *antecedent.*
- As in subject–verb agreement, a pronoun and its antecedent must both be singular or both be plural.
- Collective nouns generally take the singular pronoun *it* rather than the plural *they.* Problems result when pronouns such as *they, this,* and *it* are used carelessly, forcing the reader to figure out their antecedents.
- Overuse of the indefinite *it* (as in "*It* is obvious that") leads to confusion.

A. Problems with Sentence Construction

- A.8 Problems with Number
- 1. In the following sentence, the pronoun *It* is wrong because it does not agree in number with its antecedent, *inspections*. To correct the mistake, use *they*.

Vague	The inspections occur before the converter is ready to produce the part. It is completed by four engineers.
Clear	The inspections occur before the converter is ready to produce the part. They are completed by four engineers.

- 2. In current practice, it is now acceptable to deliberately misuse collective pronoun
- s in an effort to avoid sexist writing.

Technically correct	Everyone must bring his or her card.
Correct for informal situations	Everyone must bring their card.

A. Problems with Sentence Construction

- A.9 Problems with Antecedents
- If a sentence has several nouns, the antecedent may not be clear.

1. In the following case, *It* could stand for either *pointer* or *collector*. The two sentences can be combined to eliminate the pronoun.

Vague	The base and dust *collector* is the first and largest part of the lead *pointer*. *It* is usually round and a couple of inches in diameter.
Clear	The base and dust collector, which is the largest part of the lead pointer, is usually round and several inches in diameter.

2. In the following case, *It* could refer to *compiler* or *software*.

Vague	The new *compiler* requires new *software*. *It* must be compatible with our hardware.
Clear	The new compiler, which requires new software, must be compatible with our hardware.

A. Problems with Sentence Construction

- A.10 Problems with This

Many inexact writers start sentences with *This* followed immediately by a verb ("*This* is," "*This* causes"), even though the antecedent of *this* is unclear. Often the writer intends to refer to a whole concept or even to a verb, but because *this* is a pronoun or an adjective, it must refer to a noun. The writer can usually fix the problem by inserting a noun after *this*—and so turn it into an adjective—or by combining the two sentences into one. In the following sentence, *this* probably refers either to the whole first sentence or to *virtually impossible*, which is not a noun.

Vague — Ring networks must be connected at both ends—a matter that could make wiring virtually impossible in some cases. This would not be the case in the Jones building.

Clear — Ring networks must be connected at both ends—a matter that could make wiring virtually impossible in some cases. We can easily fill this requirement in the Jones building.

25

B. Punctuation

Apostrophes

Use the apostrophe to indicate possession, contractions, and some plurals.

Possession

The following are basic rules for showing possession:

1. Add an *'s* to show possession by singular nouns.
   a machine's parts a package's contents
2. Add an *'s* to show possession by plural nouns that do not end in *s*.
   the women's caucus the sheep's brains
3. Add only an apostrophe to plural nouns ending in *s*.
   three machines' parts the companies' managers
4. For proper names that end in *s*, use the same rules. For singular add *'s;* for plural add only an apostrophe.
   Ted Jones's job the Joneses' security holdings
5. Do not add an apostrophe to personal pronouns.
   Theirs ours its

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B. Punctuation

Contractions

Use the apostrophe to indicate that two or more words have been condensed into one. As a general rule, do not use contractions in formal reports and business letters.

I'll = I will should've = should have it's = it is they're = they are

Plurals

When you indicate the plurals of letters, abbreviations, and numbers, use apostrophes only to avoid confusion. This recommendations follows *Chicago* (353–354).

1. Do not use apostrophes to form the plurals of letters.

   Xs Ys Zs

2. Do not use apostrophes to form the plurals of abbreviations and numbers.

   JPEGs 2010s

3. Use apostrophes to form the possessive of abbreviations.

   OSHA's decision

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B. Punctuation

Brackets

Brackets indicate that the writer has changed or added words or letters inside a quoted passage.

According to the report, "The detection distance [5 cm] fulfills the criterion."

Colons

Use colons:

1. To separate an independent clause from a list of supporting statements or examples.

   The jointer has three important parts: the infeed table, the cutterhead, and the outfeed table.

2. To separate two independent clauses when the second clause explains or amplifies the first.

   The original problem was the efficiency policy: We were producing as many parts as possible, but we could not use all of them.

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B. Punctuation

Commas

Use commas:

1. To separate two main clauses connected by a coordinating conjunction (*and, but, or, nor, for, yet,* or *so*). Omit the comma if the clauses are very short.

Two main clauses — The Atlas carousel has a higher base price, but this price includes installation and tooling costs.

2. To separate introductory subordinate clauses or phrases from the main clause.

Clause — If the background is too dark, change the setting.

Phrases — As shown in the table, the new system will save us over a million dollars.

3. To separate words or clauses in a series.

Words — Peripheral components include scanners, external hard drives, and external fax/modems.

Phrases — With this program you can send the fax at 5 p.m., at 11 p.m., or at a time you choose.

Clauses — Select equipment that has durability, that requires little maintenance, and that the company can afford.

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B. Punctuation

4. To set off nonrestrictive appositives, phrases, and clauses.

Appositive — AltaVista, a Web search engine, has excellent advanced search features.

Phrase — The bottleneck, first found in a routine inspection, will take a week to fix.

Clause — The air flow system, which was installed in 1979, does not produce enough flow at its southern end.

Dashes and parentheses also serve this function. Dashes emphasize the abruptness of the interjected words; parentheses deemphasize the words.

5. To separate coordinate but not cumulative adjectives.

Coordinate — He rejected the distorted, useless recordings.

Coordinate adjectives modify the noun independently. They could be reversed with no change in meaning: *useless, distorted recordings.*

Cumulative — An acceptable frequency–response curve was achieved.

Cumulative adjectives cannot be reversed without distorting the meaning: *frequency–response acceptable curve.*

6. To set off conjunctive adverbs and transitional phrases.

Conjunctive adverbs — The vice-president, however, reversed the recommendation.

The crane was very expensive; however, it paid for itself in 18 months.

Therefore, a larger system will solve the problem.

Transitional phrases — On the other hand, the new receiving station is twice as large.

Performance on Mondays and Fridays, for example, is far below average.

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B. Punctuation

Dashes

You can use dashes before and after interrupting material and asides. Dashes give a less formal, more dramatic tone to the material they set off than commas or parentheses do. The dash has four common uses:

1. To set off material that interrupts a sentence with a different idea

   The fourth step—the most crucial one from management's point of view—is to ring up the folio and collect the money.

2. To emphasize a word or phrase at the end of a sentence

   The Carver CNC has a range of 175–200 parts per hour—not within the standard.

3. To set off a definition

   The total time commitment—contract duty time plus travel time—cannot exceed 40 hours per month.

4. To introduce a series less formally than with a colon

   This sophisticated application allows several types of instruction sets—stacks, queues, and trees.

31

B. Punctuation

Parentheses

You can use parentheses before and after material that interrupts or is some kind of aside in a sentence or paragraph. Compared to dashes, parentheses have one of two effects: They deemphasize the material they set off, or they give a more formal, less dramatic tone to special asides. Parentheses are used in three ways:

1. To add information about an item.

Acronym for a lengthy phrase A definition

This Computer Numerically Controlled (CNC) lathe costs $20,000.

The result was long manufacturing lead times (the total time from receipt of a customer order until the product is produced).

Precise technical data

This hard drive (20GB, 5400 rpm Ultra ATA/66) can handle all of our current and future storage needs.

2. To add an aside to a sentence.

   The Pulstrider has wheels, which would make it easy to move the unit from its storage site (the spare bedroom) to its use site (the living room, in front of the TV).

3. To add an aside to a paragraph.

   The current program provides the user with the food's fat content percentage range by posting colored dots next to the menu item on a sign in the serving area. To determine the percentage of fat in foods, one must match the colored dot to dots on a poster hanging in the serving area. The yellow dot represents a range of 30%–60%. (The green dot is 0%–29% and the red dot is 61%–100%.) This yellow range is too large.

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B. Punctuation

Quotation Marks

Quotation marks are used at the beginning and at the end of a passage that contains the exact words of someone else.

According to Jones (1999), "The average customer is a tourist who travels in the summer and tends to purchase collectibles and small antiques" (p. 7).

Semicolons

Use semicolons in the following ways:

1. To separate independent clauses not connected by coordinating conjunctions (*and, but, or, nor, for, yet, so*).

   Our printing presses are running 24 hours a day; we cannot stop the presses even for routine maintenance.

B. Punctuation

Underlining (Italics)

Underlining is a line drawn under certain words. In books and laser-printed material, words that you underline when typing appear in italics. Italics are used for three purposes:

1. To indicate titles of books and newspapers.

   Thriving on Chaos the San Francisco *Examiner*

2. To indicate words used as words or letters used as letters.

   That logo contains an attractive *M*.

   You used *there are* too many times in this paper.

   Note: You may also use quotation marks to indicate words as words.

   You used "there are" too many times in this paper.

3. To emphasize a word.

   Make sure there are no empty spaces on the contract and that all the blanks have been filled in *before* you sign.

C. Abbreviations, Capitalization, and Numbers

Abbreviations

Use abbreviations only for long words or combinations of words that must be used more than once in a report. For example, if words such as *Fahrenheit* or phrases such as *pounds per square inch* must be used several times in a report, abbreviate them to save space. Several rules for abbreviating follow (*Chicago*).

1. If an abbreviation might confuse your reader, use it and the complete phrase the first time.

   This paper will discuss materials planning requirements (MPR).

2. Use all capital letters (no periods, no space between letters or symbols) fo acronyms.

   NASA NAFTA COBOL HUD PAC

3. Capitalize just the first letter of abbreviations for titles and companies; th abbreviation follows with a period.

   Pres. Co.

4. Form the plural of an abbreviation by adding just *s*.

   BOMs VCRs CRTs

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C. Abbreviations, Capitalization, and Numbers

Capitalization

The conventional rules of capitalization apply to technical writing. The trend in industry is away from overcapitalization.

1. Capitalize a title that immediately precedes a name.

   Senior Project Manager Jones

   But do not capitalize it if it is generic.

   The senior project manager reviewed the report.

2. Capitalize proper nouns and adjectives.

   Asia American French

3. Capitalize trade names, but not the product.

   Apple computers Cleanall window cleaner

4. Capitalize titles of courses and departments and the titles of majors that refer to a specific degree program.

   The first statistics course I took was Statistics 1.

   I majored in Plant Engineering and have applied for several plant engineering positions.

5. Do not capitalize after a colon.

   The chair has four parts: legs, seat, arms, and back.

   I recommend the XYZ lathe: it is the best machine for the price.

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C. Abbreviations, Capitalization, and Numbers

Numbers

The following rules cover most situations, but when in doubt whether to use a numeral or a word, remember that the trend in report writing is toward using numerals.

1. Spell out numbers below 10; use figures for 10 and above.

   four cycles 1835 members

2. Spell out numbers that begin sentences.

   Thirty employees received safety commendations.

3. If a series contains numbers above and below 10, use numerals for all of them.

   The floor plan has 2 aisles and 14 workstations.

4. Use numerals for numbers that accompany units of measurement and time.

   1 gram 0.452 minute

   7 yards 6 kilometers

5. In compound-number adjectives, spell out the first one or the shorter one to avoid confusion.

   75 twelve-volt batteries

6. Use figures to record specific measurements.

   He took readings of 7.0, 7.1, and 7.3.

7. Combine figures and words for extremely large round numbers.

   2 million miles

C. Abbreviations, Capitalization, and Numbers

8. For decimal fractions of less than 1, place a zero before the decimal point.

   0.613

9. Express plurals of figures by adding just *s*.

   21s 1990s

10. Place the last two letters of the ordinal after fractions used as nouns:

    $\frac{1}{10th}$ of a second

    But not after fractions that modify nouns:

    $\frac{1}{10}$ horsepower

11. Spell out ordinals below 10.

    fourth part eighth incident

12. For 10 and above, use the number and the last two letters of the ordinal.

    11th week 52nd contract

Appendix B

Documenting Sources

- What **Documenting Sources?!**

It means following a citation system to indicate whose ideas you are using

1

Two methods to Documenting Sources

- **The American Psychological Association (APA) system.**
- **The Modern Language Association (MLA) system.**

2

Each method has two parts

- **The in-text citations**
- **The bibliography**

➢ The author places certain important items of information in the text to tell the reader which entry in the bibliography is the source of the quotation or paraphrase.

➢ These items: **author's last name, the date of publication, the number of the page , or the title of an article.**

➢ In the **APA method**, the basic items **are the author's last name** and **the year of publication.**

➢ In the **MLA method**, the basic item is **the author's last name** and **sometimes the title of the work**, often in shorthand form.

Examples

➢ **ApA Method**

According to Warne (2012), "Overfishing, pollution, seabed dredging, and massive coastal modification are crippling marine ecosystems by degrading water quality and exacerbating toxic algal blooms" (p. 73).

Warne, K. (2012, March). The Seas of Arabia. National Geographic, 66–88.

➢ **MLA Method**

As the author notes, "Overfishing, pollution, seabed dredging, and massive coastal modification are crippling marine ecosystems by degrading water quality and exacerbating toxic algal blooms" (Warne 73).

The "extension" problem

- The common problem is indicating where the paraphrased material begins and ends.

- **To solve this problem:**

➢ Place a marker at each end of the passage

➢ Use the name at the start and page numbers at the end

➢ Or use a term like "one authority" at the start and the citation at the end

APA Method

❖ The following variations are all acceptable:

➢ The author's name appears as part of the introduction of the quotation or paraphrase.

As **Warne (2012)** noted, "Overfishing, pollution, seabed dredging, and massive coastal modification are crippling marine ecosystems by degrading water quality and exacerbating toxic algal blooms" **(p. 73)**.

➢ . The author is not named in the introduction to the quotation or paraphrase.

It is noted that "Overfishing, pollution, seabed dredging, and massive coastal modification are crippling marine ecosystems by degrading water quality and exacerbating toxic algal blooms" **(Warne, 2012, p. 73).**

APA Method

- Warne (2012a) notes that "Overfishing, pollution, seabed dredging, and massive coastal modification are crippling marine ecosystems by degrading water quality and exacerbating toxic algal blooms" (p. 73).

- Warne (2012) states that human activity is having negative impacts on Arabia's seas.

- When citing block quotations (more than 40 words):

According to Warne (2012),

> Overfishing, pollution, seabed dredging, and massive coastal modification are crippling marine ecosystems by degrading water quality and exacerbating toxic algal blooms. In 2010 a group of marine scientists described the region's most strategic waterway, the Persian Gulf, as "a sea in decline," bedeviled by a storm of malign influences. "If current trends continue," they wrote, we will "lose a unique marine environment" (p. 73)

APA

- Author with multiple works in the same year

3. The author has several works listed in the References. If they have different dates, no special treatment is necessary; if an author has two works dated in the same year, differentiate them in the text and in the References with a lowercase letter after each date (2012a, 2012b).

> Warne (2012a) notes that "Overfishing, pollution, seabed dredging, and massive coastal modification are crippling marine ecosystems by degrading water quality and exacerbating toxic algal blooms" (p. 73).

- Article with no authors

6. If no author is given for the work, treat the title as the author using an abbreviated title for the parenthetical in-text citation, and list the full title first in the References.

In an unstable investment year, "TIPS, like other kinds of Treasuries, gained as investors rushed into investments perceived as safe" ("Kiplinger 25," 2012, p. 64).

The Kiplinger 25 Update. (2012, April). *Kiplinger's Personal Finance*, 64.

APA References

- **Present information for all the entries in this order: Author's name, Date. Title, Publication information.**
- **Use only the initials of the author's first and middle names.**
- **Place the date in parentheses immediately after the name.**
- **Capitalize only the first word of the title and subtitle and proper nouns.**

APA References

❖**Place the entries in alphabetical order.**

Baron, N. (2008). *Always on: Language in an online and mobile world.* New York, NY: Oxford University Press, Inc.

Bauerlein, M. (2008). *The dumbest generation.* [Kindle version]. New York, NY: Penguin Group.

Brooks, K. (2011). Death to high school English. *Salon.* Retrieved from http://www.salon.com

❖**If there are two or more works by one author, arrange them chronologically, earliest first**

Baron, N. (2000).

Baron, N. (2008).

Several common entries

- **Book with One Author**

Crystal, D. (2008). Txtng: The gr8 db8. New York, NY: Oxford University Press.

- **Book with Two Authors**

Reinking, J., & von der Osten, R. (2012). Strategies for successful writing: A rhetoric, reader and research guide (9th ed.). New York, NY: Longman.

- **Book with Editors**

St. Amant, K., &Sapienza, F. (Eds.). (2011). Culture, communication, and cyberspace: Rethinking technical communication for international online environments. Amityville, NY: Baywood.

Several common entries

- **Corporate or Institutional Author**

Teachers Insurance and Annuity Association-College Retirement Equities Fund. (2012, March 1). Summary prospectus. New York, NY: Author.

- **Brochure or Pamphlet**

Explore the outdoors in the summer program at the child and family study center [Brochure]. (2012). Menomonie, WI: Child and Family Study Center.

- **Work Without Date or Publisher**

Radke, J. (n.d.). Writing for electronic sources. Atlanta, GA: Center for Electronic Communication.

Several common entries

- **Later Edition of a Book**

American Psychological Association. (2010). Publication manual of the American psychological association (6th ed.). Washington, DC: Author.

- **Article in a Journal with Continuous Pagination**

Carr, B., Haas, C., & Takayoshi, P. (2011, July). Building and maintaining contexts in interactive networked writing: An examination of deixis and intertextuality in instant messaging. Journal of Business and Technical Communication, 25, 276-298.

- **Article in a Journal without Continuous Pagination**

Cook, D. (2010). Dr. Johnson's heart. The Cambridge Quarterly, 39(2), pp. 186–195.

Several common entries

- **Article in a Monthly or Weekly Magazine**

Kiplinger, K. (2012, April). Straight Talk on Taxes. Kiplinger's Personal Finance, 22.

Note: If the article has discontinuous pages, a comma indicates a break in sequence (4, 22–23).

Article from an online periodical

- **An article from an online periodical is similar to a hard copy article.**
- **Include**:

➢ **The volume number.**

➢ **Digital object identifier (DOI) when available**.

- **Parry, M. (2012, March 7).** Could many universities follow Borders bookstores into oblivion? The Chronicle of Higher Education. Retrieved from **http:// www.chronicle.com**

The MLA Method

- In this method, **unlike APA**, each time you refer to a quotation or paraphrase, **you give the page number only; do not use p. or pg.**

The MLA Method

- Begin the list on a new page
- Present information for all the entries in this order: Author's name. Title. Publication information (including date).
- Capitalize the first letter of every important word in the title.
- Enclose article titles in quotation marks.
- Double-space an entry if it has two or more lines.
- Indent the second and succeeding lines one half inch.

نقابة المهندسين الأردنيين
Jordan Engineers Association

ميثاق أخلاق مهنة الهندسة

أعضاء لجنة إعداد ميثاق أخلاق مهنة الهندسة

الدكتور عزالدين كتخدا	رئيس اللجنة
المهندس خير الدين ابو الهيجاء	مقرر اللجنة
المهندس رائد الشربجي	عضواً
المهندس محمد ابو عفيفة	عضواً
المهندسة مها ابو هدبا	عضواً
المهندس وائل زريقات	عضواً
المهندس اميل الغوري	عضواً
المهندس عامر الطباخي	عضواً
الدكتورة سهير الخطيب	عضواً
المهندسة حنان عواد	عضواً
المهندس أسعد عطوان	عضواً
المهندس محمود الفرارجة	عضواً
السيد محمد حجازي	سكرتير

المقدمة

يواجه المهندس في حياته المهنية مجموعة من العلاقات ذات حلقات متسعه من حيث تعامله مع نفسه ومحيطه المهني ومجتمعه وقضايا وطنه وأمته والقضايا الإنسانية. وكلما اتسعت الحلقة كلما كان عدد المؤثرين والمتأثرين أكبر، وزادت الحاجة إلى تفاعل وتضامن جهود أقوى لتحقيق النجاح. تالياً الركائز الأساسية لأنواع التعامل التي يواجهها المهندس في حياته المهنية، والإلتزامات الأخلاقية التي يجب عليه احترامها عندما يقوم بمزاولة مهنته، وعليه أن يكون مستعداً لبرهنة ذلك.

كلمة نقيب المهندسين الأردنيين

بسم الله الرحمن الرحيم

الأخلاق بشكل عام ، وأخلاق مهنة الهندسة بشكل خاص موضوع جدير بالطرح والإهتمام فالأخلاق أساس صلاح أمر الإنسان وأساس صلاح المؤسسات وأساس صلاح المجتمعات ، والشاعر يقول:

صلاحُ أمرِكَ للأخلاقِ مرجعُه فقوِّم النفسَ بالأخلاقِ تَسْتَقِم

والأخلاق مجموعة من القواعد والآداب السلوكية التي يجب أن تصاحب الانسان المحترف في مهنته تجاه عمله ، وتجاه المجتمع ككل ، وتجاه نفسه وذاته وإذا اعتبر الانسان أن أداءه ينحصر في القدرات الفنية وحسب ، فإن ذلك يُعد نقصاً في إنسانيته.

إن أخلاقيات المهنة هي جزء من منظومة الأخلاق ، والممارس لمهنة معينة يواجه أنواعاً خاصة من المشكلات ذات الطبيعة الأخلاقية ، يتعين عليه أن يتعلم كيف يواجهها بشكل منهجي.

إن تمتع الفرد بالقيم السامية والاخلاق الفردية ، والتزامه بمنظومة قيم المجتمع الذي يعيش فيه ، إضافة إلى التزامه

باللوائح والأنظمة والقوانين المعمول بها كفيل بالوصول إلى مجتمع مهني ملتزم بأخلاق المهنة ، ناصع الصورة قوي التأثير .

وإنّ هذا الميثاق يُعتبر خطوة على طريق تحفيز المهندسين للإلتزام بأخلاق المهنة ، وإنها خطوة ينبغي أن يتبعها خطوات عملية بوسائل مختلفة لتعميم هذه القيم والاخلاق ، وصولاً الى مجتمع راقٍ ومتحضرٍ تشكل المهنة فيه مقدمة لمواثيق وأخلاقيات التعامل بين افراده ومثالاً يحتذى في التعاملات والعلاقات .

واخيرا .... شكراً للجنة العاملة على صياغة هذا الميثاق رئيسا وأعضاء وشكرا لكل من عمل على إخراجه بهذه الصورة اللائقة ، وشكرا لكل مهندس خلوق يضرب المثل والقدوة بسلوكه وأخلاقه.

مؤكدين ان نقابة المهندسين الأردنيين ستبقى باذن الله متجددة في عطائها مواكبة لتطورات عملها محافظة على ثوابتها في كافة ممارسات تخصصات الهندسة التي يمارسها منتسبوها في خدمة الوطن سواء عملوا داخل الوطن او خارجه ... والله ولي التوفيق.

المهندس ماجد علي الطباع

كلمة رئيس لجنة ميثاق أخلاق مهنة الهندسة

- أنا المهندس فخور بنفسي وبمهنتي.
- أؤمن أن الهندسة مهنة نبيلة تطور المجتمع وتقوده.
- وأن علي كمهندس واجبات يجب أن أحترمها.
- وقواعد أخلاق يجب التقيد بها وممارستها:
  - نحو علاقتي مع نفسي وزميلي ونقابتي.
  - نحو علاقتي مع طالب الخدمة الهندسية والمؤسسة التي أعمل بها، وعملي الهندسي.
  - نحو علاقتي كصاحب عمل مع الشركات الزميلة والمؤسسات والشركات ذات العلاقة.
  - نحو علاقتي مع البيئة والتنمية المستدامة والصحة والسلامة العامة.
  - نحو علاقتي مع قوانين الدولة وقوانين العمل والعمال.
  - نحو علاقتي مع المجتمع والقضايا الوطنية.
  - ونحو علاقتي مع قضايا الأمة والقضايا الإنسانية.
- أنا المهندس فخور بنفسي وبمهنتي.

الدكتور المهندس عزالدين كتخدا

الأهداف والغايات

يشكل قانون النقابة وأنظمتها المرجعية التي تحدد الأهداف والغايات التي يستند إليها مجلس النقابة في أداء وتنفيذ السياسات العامة بالإضافة إلى الإسترشاد بقرارات هيئات النقابة وتوجهاتها (الهيئة العامة، الهيئة المركزية ، الهيئات العامة للشعب الهندسية ، الهيئة العامة للمكاتب والشركات الهندسية ، والهيئات العامة في الفروع) ، وترد الأهداف بصورة عامة على النحو التالي:

1. تنظيم مزاولة المهنة ابتغاء الإرتفاع بمستواها العلمي والمهني والإنتفاع بها في التعبئة الاقتصادية ، والحضارية والقومية.
2. الدفاع عن مصالح الأعضاء وكرامتهم والحفاظ على تقاليد المهنة وشرفها.
3. الإرتقاء بالمستوى العلمي والمهني للمهندسين وتنشيط البحث العلمي الهندسي ودعمه.
4. المساهمة في تخطيط برامج التعليم والتدريب الهندسي والصناعي والمهني تطويرها، والعمل على رفع كفاءة العاملين في الحقل الهندسي.

5. المساهمة في دراسة الموضوعات ذات الطابع المشترك بين البلاد العربية والاسلامية وغيرها وتبادل المعلومات والخبرة والمطبوعات الهندسية فيما بينها.
6. تأمين الحياة الكريمة للمهندسين وعائلاتهم في حالات العجز والشيخوخة والحالات الاضطرارية الأخرى.
7. العمل على كل ما يساعد النقابة في تحقيق أهدافها المهنية.
8. التعاون والتنسيق مع الجهات الرسمية في المملكة بصفة النقابة هيئة استشارية في مجال تخصصها.
9. التعاون والتنسيق مع الإتحادات المهنية الهندسية العربية والإسلامية والدولية والإشتراك في عضويتها.

نقابة المهندسين الأردنيين
Jordan Engineers Association

الرؤية

مهندس
يعمل برتقي يبدع
في بيئة محفزة وآمنة

الرسالة

قيادة العمل المهني الهندسي بأفضل الممارسات
وريـــادة المهـــنـــدس الأردنـــي
نحو مجتمع هندسي منافس عالمياً

قيمنا الجوهرية

النزاهة
المهنية والإحتراف
القيادة
الريـادة والإبـداع
العالمية

نقابة المهندسين الأردنيين
Jordan Engineers Association

المرتكزات الأساسية لميثاق أخلاق مهنة الهندسة

1 علاقة المهندس مع نفسه

- 1-1 على المهندس أن يبدي الفخر والاعتزاز بمهنة الهندسة.
- 1-2 الالتزام بأخلاق المهنة.
- 1-3 الإلتزام بالتطوير المستمر لذاته علمياً ومهنياً.
- 1-4 الإلتزام بتبليغ الجهات المعنية عن أي ممارسة غير قانونية وتشجيع الآخرين على هذا السلوك.

2 علاقة المهندس مع زميله

- 2-1 الإلتزام بالإحترام المتبادل مع الزملاء.
- 2-2 الحرص على التنافس الشريف مع الزملاء.
- 2-3 التقدير والإحترام للرأي الآخر وعدم اللجوء للتعصب في الرأي أو تسفيه أرآء الآخرين.
- 2-4 الإلتزام بعدم إنتقاد أعمال الآخرين بالعلن وعدم اللجوء إلى التشهير والطعن بالزملاء أو أعمالهم.
- 2-5 الإلتزام بأن المعرفة والمعايير الهندسية هما الحكم الفصل في حال وجود خلافات فنية.
- 2-6 السعي لنقل المعلومات العلمية والخبرة العملية للزملاء.

3 علاقة المهندس مع نقابته وهيئاتها

- 3-1 الإلتزام بقانون النقابة وأنظمتها وتعليماتها.
- 3-2 العمل على دعم جهود النقابة لما فيه مصلحة المهنة.
- 3-3 العمل على بذل الجهد الأقصى لإستمرارية تطوير النقابة.
- 3-4 المشاركة والتفاعل مع نشاطات وفعاليات النقابة المتنوعة.

4 علاقة المهندس مع طالب الخدمة الهندسية (صاحب العمل)

- 4-1 حفظ سرية المعلومات والبيانات المتعلقة بصاحب العمل وعدم إفشائها.
- 4-2 التعامل بصدق وشفافية مع صاحب العمل وعدم إعطاء الوعود التي لا يمكن تطبيقها.
- 4-3 بذل أقصى الجهود المهنية لخدمة صاحب العمل وتقديم افضل الحلول المناسبة فنياً واقتصادياً.
- 4-4 إيضاح كل ما يتعلق بالعمل المقدم من حيث التكلفة والجودة والمدة المحددة لإنجازه.
- 4-5 على المهندس تقديم الخدمات في مجال اختصاصه فقط.
- 4-6 الالتزام بعدم تقديم الخدمة لمشاريع مخالفة للتشريعات.

5 علاقة المهندس مع مؤسسته التي يعمل بها

- 5-1 احترام عقد العمل وسياسات وتعليمات المؤسسة.
- 5-2 الإلتزام بالمحافظة على سرية المعلومات والبيانات المتعلقة بالمؤسسة.
- 5-3 الإلتزام بالمحافظة على سمعة المؤسسة.
- 5-4 الإلتزام بتقديم العمل بإخلاص وأمانة وعدم استغلال المؤسسة للمنفعة الخاصة.
- 5-5 احترام الملكية الفكرية لمؤسسة العمل.
- 5-6 الإلتزام بالآداب المهنية في حل أي خلاف مع المؤسسة.
- 5-7 الإلتزام بالمحافظة على قدرات وممتلكات وموارد المؤسسة.
- 5-8 الإلتزام بعدم مزاولة العمل خارج المؤسسة إلا بإذن خاص.
- 5-9 الإلتزام بعدم احتكار المعرفة المؤسسية.

6 علاقة المهندس مع عمله الهندسي

- 6-1 الإلتزام باستعمال الكودات المعمول بها في جميع الأعمال الهندسية.
- 6-2 الإلتزام بالسعي لاستخدام أفضل الأساليب الفنية والاقتصادية في تقديم الأعمال الهندسية.
- 6-3 الإلتزام بتوظيف القدرات الإبداعية في إيجاد الحلول الهندسية.
- 6-4 الإلتزام بالعمل على نقل المعرفة والخبرة الهندسية العالمية وتوطينها.
- 6-5 على المهندس الإلتزام بالدقة والموضوعية في الأعمال الهندسية.

7 علاقة المهندس كصاحب عمل مع الشركات الزميلة

- 7-1 الإلتزام بضمان المنافسة الشريفة مع الشركات الأخرى.
- 7-2 الإلتزام ببذل الجهد في السعي للتعاون والائتلاف مع الشركات الزميلة لتعظيم القيمة المضافة.
- 7-3 الإلتزام بأن تكون المعرفة والمعايير الهندسية هي الحكم الفصل في حال وجود خلافات فنية.
- 7-4 الإلتزام بعدم التشهير والطعن في الشركات الزميلة واحترام خصوصيتها.

8 علاقة المهندس مع المؤسسات والشركات ذات العلاقة (تعهدات، صناعي، تجاري...الخ)

- 8-1 الإلتزام بالحيادية في التعامل مع الشركات المتنافسة واختيار الأفضل لتقديم الخدمة المطلوبة.
- 8-2 الإلتزام بعدم الحصول على أي منفعة شخصية نتيجة التعامل مع الشركات ذات العلاقة.
- 8-3 الإلتزام بالتعامل بمهنية وموضوعية مع الشركات ذات العلاقة.

9 علاقة المهندس مع البيئة والتنمية المستدامة والصحة والسلامة العامة

- 9-1 الإلتزام بتطبيق الكودات والتشريعات الخاصة بالبيئة والصحة والسلامة العامة.
- 9-2 الإلتزام بالمحافظة على بيئة سليمة ونظيفة.
- 9-3 الإلتزام بعدم استخدام آو تقديم أي حلول تضر بالبيئة المحيطة.
- 9-4 الإلتزام بعدم الاستخدام الجائر للموارد الطبيعية.
- 9-5 الإلتزام بالتوجه نحو إستخدام الطاقة المتجددة.
- 9-6 الإلتزام باستخدام المواد الصديقة للبيئة قدر الإمكان.
- 9-7 الإلتزام بتشجيع الاستفادة من إعادة التدوير.
- 9-8 الإلتزام باستخدام الحلول الهندسية الموفرة للطاقة والصديقة للبيئة.
- 9-9 الإلتزام باستخدام الوسائل والطرق التي تؤمن وتحافظ على الصحة والسلامة العامة.
- 9-10 الإلتزام بنشر الوعي بالصحة والسلامة العامة.
- 9-11 الإلتزام بالتفاعل الإيجابي عند ملاحظة أوضاع تهدد الصحة والسلامة العامة.

10 علاقة المهندس مع قوانين الدولة

- 10-1 الإلتزام بدستور الدولة قوانينها وأنظمتها.
- 10-2 الإلتزام بالأمانة العلمية والحيادية عند إبداء الرأي أو تقديم الإستشارات لأية أعمال تخص الدولة فيما يتعلق بالقوانين والتشريعات.

11 علاقة المهندس مع المجتمع

- 11-1 الإلتزام في السعي لرفاهية المجتمع وأمنه.
- 11-2 بذل الجهد للانخراط في العمل الاجتماعي التطوعي.
- 11-3 الإلتزام بدعم الجهد الثقافي والفني والرياضي.
- 11-4 الإلتزام بالسعي لتوظيف الهندسة لخدمة المجتمع.
- 11-5 الإلتزام بنشر الوعي الهندسي في المجتمع.
- 11-6 عدم استخدام وسائل التواصل الإجتماعي بما لا يتلائم مع الاخلاق العامة واخلاق المهنة.

12 علاقة المهندس مع قوانين العمل والعمال

- 12-1 الإلتزام باحترام حقوق العاملين وتنمية قدراتهم وتقدير جهودهم.
- 12-2 الإلتزام بالتقيد بقوانين العمل والعمال.
- 12-3 الإلتزام بالعدالة في التعامل مع المرؤوسين بقطع النظر عن الجنس واللون والعرق والدين والأصول والمناطق الجغرافية.
- 12-4 الإلتزام بعدم استغلال العمالة وعدم تشغيل الأطفال.

13 علاقة المهندس مع القضايا الوطنية

- 13-1 الافتخار بالإنتماء للوطن وتمثيله بأفضل صورة.
- 13-2 الإلتزام بالدفاع عن قضايا الوطن.
- 13-3 الإلتزام بالعمل على تحسين حياة المواطن.
- 13-4 الإلتزام بالعمل على وحدة مكونات الوطن.

14 علاقة المهندس مع قضايا الأمة

- 14-1 الإلتزام في الدفاع عن قضايا الأمة وقيمها ومبادئها.
- 14-2 الإلتزام بالعمل على توحيد الأمة وجمع كلمتها.

15 علاقة المهندس مع القضايا الإنسانية

- 15-1 الالتزام بالدفاع عن كرامة الإنسان وحريته واحترام القيم الإنسانية.
- 15-2 الإلتزام بالعمل على تأمين السلام والوئام ونشر الفضائل بين الأمم.
- 15-3 الإلتزام بمساعدة الشعوب التي تتعرض للكوارث الطبيعية والازمات.

نقابة المهندسين الأردنيين
Jordan Engineers Association

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نقابة المهندسين الأردنيين

University of Jordan
School of Engineering
Computer Engineering Department

GP01 – Graduation Project Proposal

Supervisor		Semester / Year	

No.	Student Name	ID Number	Dept.	GPA	Signature
2					

Emails (To contact you - if needed - after graduation):
Student 1:
Student 2:

Choose all that applies:

Project Type	☐ Hardware	☐ Software / App / Web Development	☐ Research

Please completely fill all required fields below. Do not change fonts or font size. **The form should not exceed four pages.**

Title of Senior Year Project	
Project Summary	*Kindly follow the following layout precisely so that your proposal will not get rejected.* 1. *Start this section by a brief introduction/background of the general topic, perhaps if you need to provide a definition, a background story related to the topic. It goes here.* 2. *Then you quickly summarize any previous attempts, products, research that tried to address the topic, solve it, improve previous work.* 3. *List the previous products/designs/research shortcomings. Why do they have problems, or what features they lack, or how could they be improved.* 4. *Students must then explain concisely, yet precisely what their proposed software is about, or what the hardware design should do, or what problem they are addressing and trying to solve or improve its current solution. We expect the students did their research well.* 5. *Then, you must list the **methodology**, that is, summarize the major steps your project must go through from beginning to end.* 6. *Also, list the **objectives** of the project clearly.* *Students must not only think of the project from a technical point of view, but also think if their project has a social aspect, legal aspect, economic aspect, etc. For example, do not propose a project that while it technically works, it might conflict with privacy laws.* *We are attaching two sample project proposals for you to consult as a reference.*

<table>
<tr><td>Project Impact</td><td>Why is your project important?
Please do not just list keywords like reduce cost, better performance, more security! You should justify and explain how your project will actually have this impact and not just empty words and promises. Try to support your impact claims from previous works who did the same, studies - if applicable , or at least make a compelling and convincing argument so that the reader agrees with you and your project importance.</td></tr>
<tr><td>Engineering Standards to be used (if any)</td><td>For example, students list and <u>briefly explain if and how</u> they are using security protocols or algorithms (AES, RSA, …etc.), networking protocols (TCP/IP /UDP /DDS /XMPP ... etc), or embedded protocols (SPI / I²C / Zigbee / BLE / USB / JTAG / CAN … etc) or any professional engineering or safety standards.

<u>If you are not using any, write none</u>.</td></tr>
<tr><td>Simulators
Cloud Services
Operating Systems</td><td>Linux, embedded Linux, RTOS, … etc.
AWS, Azure, Google Cloud … etc.
ns3 simulator</td></tr>
<tr><td>Software Tools or IDEs
Software or Hardware Programming Languages
Libraries/Drivers
Databases
Data Sets</td><td>Examples:
PyCharm, Visual Studio, Eclipse. Keil, Xilinx ISE Design Suite, Intel Quartus Prime … etc.
C++, Java, MATLAB, Python, Verilog, VHDL, Android, JavaScript, HTML, Embedded C, SQL … etc.
Keras, numpy, scikit-learn, Tensor Flow … etc.</td></tr>
<tr><td>Project Constraints, if any.</td><td>What are the estimated project costs? Please explain how did you estimate these costs? HW costs? Product or cloud subscription?
Is your project going to be funded?
Any technical or social or legal difficulties you anticipate that might limit your project?
Does the scope of your project fall within the graduation project submission time frame? What are the risks involved that might delay your project?</td></tr>
<tr><td>Gantt Chart</td><td>Kindly attach as a PDF or Excel with this proposal a Gantt chart of the project plan. You learnt about the Gantt chart in Introduction to Engineering course. You must divide your time spent on the project into phases and subphases, have start/end date and expected duration for each part, then list who is going to work on each part</td></tr>
<tr><td rowspan="2">Final Deliverables</td><td colspan="2">What the committee is supposed to see? A hardware design? A web app? A mobile app? A software service? A mix?, and if so, how they interact with each other? A new algorithm? A solution or improvement to a current research problem? … etc.
Are you making videos, posters, other illustrative means?</td></tr>
<tr><td>Compulsory Deliverables:</td><td>1. Project 1 Progress Report
2. Final Documentation
3. Presentation Slides</td></tr>
</table>

For graduation project committee use (please do not write below this point):

Final Committee Decision:

☐ Approved

☐ Approved, with **minor** modifications.

☐ Approved, with **major** modifications.

☐ **Rejected**, submit new project idea.

☐ Language modifications required

	Name	Signature	Date
Chair			
Member I			
Member II			

Detailed Committee Members Remarks

	Comments	Recommendation
Chair		☐ Approved ☐ Approved, with **minor** modifications ☐ Approved, with **major** modifications ☐ **Rejected**, submit new project idea.
Member I		☐ Approved ☐ Approved, with **minor** modifications ☐ Approved, with **major** modifications ☐ **Rejected**, submit new project idea.

Member II		☐ Approved ☐ Approved, with **minor** modifications ☐ Approved, with **major** modifications ☐ **Rejected**, submit new project idea.

University of Jordan
School of Engineering
Computer Engineering Department

GP01 – Graduation Project Proposal

Supervisor	Dr. Ashraf Suyyagh	Semester / Year	*Fall 2020*

No.	Student Name	ID Number	Dept.	Signature
1	Hamza Nael Ahmad	0175273	Computer Engineering	

Choose all that applies:

Project Type	☐ Hardware	☐ Software / App / Web Development	☐ Research

Please completely fill all required fields below. Do not change fonts or font size. **The form should not exceed three pages.**

Title of Senior Year Project	Social-Media and AI-Based Opinion Polling Tool
Project Summary	*Opinion polling is a human survey of public opinion from a given sample. Pollsters conduct surveys to weigh public opinion on the popularity of public celebrities or social or political issues. They use these polls to forecast election results or provide decision makers with a social compass on pertinent issues. The samples are usually small and often conducted through phone calls, and sometimes through a website. Despite having a statistical margin of error, Polls often fail in capturing the big picture due to coverage bias, response bias, non-response bias, and sampling errors. In this project, we propose to build a tool that compliments traditional polling techniques that is based on mining social media posts and analyzing the text and/or emotions embedded in user social media interactions. This will allow access to a far greater sample, and possibly alleviate some of the issues that traditional polling techniques suffer from. We propose using cloud-based AI and Machine Learning for the opinion extraction and analysis part. We propose building the entire infrastructure for data collection, preprocessing, analysis, and display using a user-friendly front-end web interface. We will use charts to track opinion polls over time. In this project, we will focus as a case study on analyzing the popularity of foreign political public figures, or famous athletes as a proof of concept.* ***Methodology:*** *Collecting posts from a social media API about a public figure* • *Preprocess the collected data* • *Analyze the posts using and Machine Learning cloud service to extract people feelings or views about the public figure* *Categorize the result into positive and negative* • *Determine the percentage of each category and display the result on the web site* *Objectives:*

	1. *Provide a novel polling service that is more representative, requires less effort and costs less.* 2. *Utilize Cloud-based AI and machine learning to understand how people feel about certain issues.*
Project Impact	*Opinion polling is a powerful tool. Polls measure the nation's attitude toward public figures or important issues. They help decision makers write regulations that the public is in favor of, or sway away from divisive social issues especially in election years. Popular athletes or actors might use their popularity to negotiate better contracts, or club owners might make transfer or athlete procurement decisions based on their popularity. It is essential that these polls be as accurate and representative as much as possible. Our project tries to mine the opinions of much larger sample with minimum effort and cost. It offers the possibility to get more authentic and truthful answers from user interactions that they might not necessarily share with pollster out of fear of judgment or shame.*
Engineering Standards to be used (if any)	*none*
• **Simulators** • **Cloud Services** • **Operating Systems**	*AWS, Azure* *Linux*
• **Software Tools or IDEs** • **Software or Hardware Programming Languages** • **Libraries/Drivers** • **Databases** • **Data Sets**	*IDE: Visual Studio Code* *Web site front-end: JavaScript, HTML, CSS, Twitter Bootstrap, jQuery* *Web site back-end: Node JS and its Libraries* *Database: MongoDB* *Datasets: JSON* *API: Social media APIs (e.g. twitter API).*
Project Constraints, if any.	*The estimated cost of my project is 30$~40$ for the AWS and Azure services. It will be funded using AWS founder package which I got from amazon hackathon competition*
Precise Role of each Student	*I will do all this job on my own*
Final Deliverables	*Web App that mines social media for opinions on public figures*
	Compulsory Deliverables: — **1. Project 1 Progress Report** **2. Final Documentation** **3. Presentation Slides**

For graduation project committee use (please do not write below this point):

Final Committee Decision:

☐ Approved

☐ Approved, with **minor** modifications.

☐ Approved, with **major** modifications.

☐ **Rejected**, submit new project idea.

☐ Language modifications required

	Name	Signature	Date
Chair			
Member I			
Member II			

Detailed Committee Members Remarks

	Comments	Recommendation
Chair		☐ Approved ☐ Approved, with **minor** modifications ☐ Approved, with **major** modifications ☐ **Rejected**, submit new project idea.
Member I		☐ Approved ☐ Approved, with **minor** modifications ☐ Approved, with **major** modifications ☐ **Rejected**, submit new project idea.
Member II		☐ Approved ☐ Approved, with **minor** modifications

		☐ Approved, with **major** modifications ☐ **Rejected**, submit new project idea.

University of Jordan
School of Engineering
Computer Engineering Department

GP01 – Graduation Project Proposal

Supervisor	Dr. Ashraf Suyyagh	Semester / Year	*Fall 2020*

No.	Student Name	ID Number	Dept.	GPA	Signature
2					

Choose all that applies:

Project Type	☐ Hardware	■ Software / App / Web Development	■ Research

Please completely fill all required fields below. Do not change fonts or font size. **The form should not exceed three pages.**

Title of Senior Year Project	Real-Time Meal Analysis and Food Nutrients Value Detection using AI
Project Summary	*In the past 20 years, there has been a rise in the levels of awareness and interest in well-being, better physical and mental health, weight management and eating healthy. Many people pay more attention to the calorie content, or the daily nutrients value per serving. They either consult the Internet or the printed table on the food covering to access this information. Mobile applications like CarbandMove, MyFitnessPal, and FatSecret allow users to access food nutritional value through manual entry. Google's Im2Calories system uses an image of a food object and volume estimation to predict its calorie content. Both techniques have some issues. The manual entry mode is tedious, while Google's service is restricted to a certain menu database. There is ongoing research interest that continually tries to improve on current solutions [1] [2].* *In this project, students are required to build a mobile app through which they can take a picture of their meal, recognize its contents, and provide the associated nutritional value to the user. If time permits, students can factor in the food volume as well for a more accurate prediction. The students will tailor this project whenever possible to foods common in the Arabic or Middle Eastern cuisine. Students must use AI to detect the food items and associate them with their nutritional tables. They can use either Android or iOS for their mobile app development. If students wish to leverage the power of cloud AI and services, they are permitted to do so, or they can develop their own AI models. Students can add features and equations related to BMI, expected daily calorie intake, track their food consumption over a period, and issue alerts.* ***Methodology*** • *Review related work (apps and services) and literature (papers)* • *If students have no prior knowledge in Python, AI, or the cloud, then acquire the necessary skills to be able to implement the project* • *Preview the available datasets, and extend it with Arabic meals* • *Implement the AI engine either using Python or a cloud service*

	• *Build the mobile app* • *Interface the mobile app with the AI engine* • *Thoroughly test the app* ***Objectives**:* • *Provide an easy-to-access, easy-to-use, user-friendly real-time food analysis and nutritional value service to health-aware individuals.* • *Improve current available solutions to include Arabic/Middle Eastern cuisine* • *Help people make conscious decisions about the food they consume or order.* *[1] J. Sun, K. Radecka and Z. Zilic, "Exploring Better Food Detection via Transfer Learning,"* 2019 16th International Conference on Machine Vision Applications (MVA)*, Tokyo, Japan, 2019, pp. 1-6* *[2] arXiv:1909.05994v2, J.Sun, K. Radecka, Z. Zilic, "FoodTracker: A Real-time Food Detection Mobile Application by Deep Convolutional Neural Networks", 2019*
Project Impact	*Health issues related to malnutrition, obesity, and being underweight are a world-wide problem with huge economic burdens on the individual and government [1]. Jordan is no exception. Recent studies show that an average of 15% of Jordanian children between 5 and 17 are obese, 5% are underweight [2], while 7.7% suffer from malnutrition [3]. One study found out that Vitamin D deficiency is exceptionally high in Jordan [4]. Fast food and junk food are one factor, while inability to purchase healthy food is another. Many people often rely on costly vitamin supplements, or weekly visits to dieticians and doctors to help them manage their weight or replenish their nutrients deficiencies. This project targets people who would like to keep track of the food value they consume in terms of calories and nutritional content. It can provide them in real-time if the food they are about to eat has sufficient levels of the vitamins or minerals they need, or if it is high in calories, or saturated fat or sugars. This project helps people control their eating habits, and consequently maintain a healthy lifestyle.* [1] Tremmel, M., Gerdtham, U. G., Nilsson, P. M., & Saha, S. (2017). Economic Burden of Obesity: A Systematic Literature Review. *International journal of environmental research and public health*, *14*(4), 435. https://doi.org/10.3390/ijerph14040435 [2] Zayed, A.A., Beano, A.M., Haddadin, F.I. *et al.* Prevalence of short stature, underweight, overweight, and obesity among school children in Jordan. *BMC Public Health* **16,** 1040 (2016). [3] Sharaf, M.F., Rashad, A.S. Regional inequalities in child malnutrition in Egypt, Jordan, and Yemen: a Blinder-Oaxaca decomposition analysis. *Health Econ Rev* **6,** 23 (2016). [4] El-Khateeb M, Khader Y, Batieha A, et al. Vitamin D deficiency and associated factors in Jordan. *SAGE Open Medicine*. January 2019.
Engineering Standards to be used (if any)	*None*
• **Simulators** • **Cloud Services** • **Operating Systems**	*If Students wish to use a Cloud-AI service: AWS or Azure*

• **Software Tools or IDEs** • **Software or Hardware Programming Languages** • **Libraries/Drivers** • **Databases** • **Data Sets**	• ***For AI Engine Development:*** *Pycharm, Keras, numpy, and Tensor Flow or A Cloud-AI service* • ***For Android Application development:*** *Java, JSON, Android Studio* • ***Dataset*** *Students can research any of the dozens of food datasets available at* ***https://hackernoon.com/machine-learning-food-datasets-collection-db21e38ea225*** *They can manually add and annotate Arabic meals to the datasets*
Project Constraints, if any.	*If the students want to opt for the cloud-AI service. Depending on the cloud-service there might be some costs. Yet, Azure gives a free 100$ credit per student which can offset the cost.* *The Nutritional Value Tables might not be comprehensive for Arabic food.*
Precise Role of each Student	*I prefer my students to divide the work in between them, yet, be knowledgeable of each other's work. They must equally divide these steps in between them:* 1. *Research and Design Requirements (Functional and Qualitative) (Both)* 2. *Collecting or interfacing to services that offer ND Tables* 3. *AI development* 4. *Mobile app development* 5. *Verification and validation*
Final Deliverables	*The committee must see a mobile app that can take a real-time picture of a meal, then provide the user with the nutritional value of its content.*
Compulsory Deliverables:	**1. Project 1 Progress Report** **2. Final Documentation** **3. Presentation Slides**

For graduation project committee use (please do not write below this point):

Final Committee Decision:

☐ Approved

☐ Approved, with **minor** modifications.

☐ Approved, with **major** modifications.

☐ **Rejected**, submit new project idea.

☐ Language modifications required

	Name	Signature	Date
Chair			
Member I			
Member II			

Detailed Committee Members Remarks

	Comments	Recommendation
Chair		☐ Approved ☐ Approved, with

		<u>minor</u> modifications ☐ Approved, with **<u>major</u>** modifications ☐ **Rejected**, submit new project idea.
Member I		☐ Approved ☐ Approved, with **<u>minor</u>** modifications ☐ Approved, with **<u>major</u>** modifications ☐ **Rejected**, submit new project idea.
Member II		☐ Approved ☐ Approved, with **<u>minor</u>** modifications ☐ Approved, with **<u>major</u>** modifications ☐ **Rejected**, submit new project idea.

University of Jordan
School of Engineering
Computer Engineering Department

GP02 – Inter-department Graduation Project Coordination

- Please fill this form only if you are a computer engineering student doing your graduation project in collaboration with students in other engineering departments in the University of the Jordan, and under the *main supervision of a supervisor from that department*.However, the CPE student **must have** a co-supervisor from the CPE department.
- Only one computer engineering student is allowed per group. The student discussion will be held according to the rules and grading system of the **other department.**
- If a student from another department wishes to join a group from the CPE department, and the project to be discussed per the CPE department rules and regulations, then please fill GP01 instead.

Co-supervisor / Computer		**Semester / Year**	
Supervisor / Electrical			
Supervisor / Mechatronics		**If other, specify Dept.**	
Supervisor/ Other			

No.	Student Name	ID Number	Dept.	GPA	Signature
			Computer Engineering		

Emails (To contact you - if needed - after graduation):
CPE Student email:

Choose all that applies:

Project Type	☐ **Hardware**	☐ **Software /App/Web Development**	☐ **Research**

Title of Senior Year Project	

The University of Jordan
School of Engineering - Department of Computer Engineering
GP04 - Committee Graduation Project Evaluation Form

Academic Year:	**2020/2021**			
Semester:	**Fall / Spring**			
Project Title:			**Numerical Grade**	**Letter Grade**
Student Name 1:	**ID:**		#DIV/0!	**#DIV/0!**
Student Name 2:	**ID:**		#DIV/0!	**#DIV/0!**

Committee	**Signature**
Supervisor (S):	
Member (M1):	
Member (M2):	

				Evaluation	**Maximum Grade**	**S**		**M1**		**M2**		**Avg**	
	Commissioning others to do the project on behalf of the student, plagiarism, data falsification, making-up data, or manipulation of statistics will result in the student failing the project			**SO**		**Student 1**	**Student 2**	**Student 1**	**Student 2**	**Student 1**	**Student 2**	**Student 1**	**Student 2**
Supervisor Assessment (20)													
1	Students were able to conduct literature review properly, collect relevant data, decide on tools to be used, and define project objectives with respect to contemporary issues related to the project	**Project I**			**5**							0	0
2	Progress Report				**5**							0	
3	Student attended scheduled project meetings and carried out the supervisor instructions.			-	**3**							0	0
4	Student was self-motivated and enthusiastic about the project				**2**							0	0
5	Student was able to work in a team and in harmony			(5)	**5**							0	
Report (20)						**S**		**M1**		**M2**		**Avg**	
6	Student properly used the English/technical language (i.e. spelling, grammar, logical sequence of ideas, impersonal and professional report, adherence to report format)			-	**5**							#DIV/0!	
7	Student properly presented the abstract, literature review section with adequate and correctly formatted references, conducted comparisons of previous works, and highlighted the novelty of their work			-	**5**							#DIV/0!	
8	Student properly presented the methods/tools/hardware (if any) used in the implementation, and properly justified using said methods/hardware				**5**							#DIV/0!	
9	Student properly presented, interpreted, and illustrated results (e.g. graphs, tables), showed strengths and possible weaknesses, future directions, and conclusion			-	**5**							#DIV/0!	

	Project Deliverables and Assessment (40)			S	M1	M2	Avg
10	Student demonstrated ability to apply knowledge of mathematics, science, and engineering in solving (complex) problems		5				#DIV/0!
11	Student showed awareness of the project impact on economy and society		5				#DIV/0!
12	Student showed ability to explore, self-learn, acquire new knowledge and skills beyond what they learnt during their studies	(7)	5				#DIV/0!
13	Student showed ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	(2)	5				#DIV/0!
14	Student adhered to ethical practices and professional responsibilities throughout the project	(4)	5				#DIV/0!
15	Student demonstrated how verification and validation were carried out	-	5				#DIV/0!
16	Student demonstrated the project successfully and achieved target project objectives (i.e. Did the app work? Did the hardware work? If research project, did it produce competitive results?)	-	10				#DIV/0!
	Presentation (20)			**S**	**M1**	**M2**	**Avg**
17	Student conducted the presentation in proficient English and showed proper use of technical terms	(3)	4				#### ####
18	Student was able to express the ideas orally, understand the EC questions and answer them while referring to sources (*if necessary*)		4				#### ####
19	Student prepared the slides properly in terms of professional template choice, colours, fonts, figures and tables presentation, slide numbering	-	4				#DIV/0!
20	Student prepared the slides properly in terms of content and flow (background and motivation, methodology, results)	-	4				#DIV/0!
21	Student was ready for their presentation and managed their time successfully	-	4				#### ####
			100				#### ####

ABET OUTCOMES	Grade		
(2)	5	####	####
(3)	8	####	####
(4)	5	####	####
(5)	5	0	0
(7)	5	####	####

Considered for projects of teams of two

The University of Jordan

School of Engineering
Department of Computer Engineering

Your Title Goes Here

Supervisor:
Prof./Dr./Eng.

Author(s):
Replace student Name 1 here Fill ID 1 here
Replace student Name 2 here Fill ID 2 here

May 25th, 2021

Submitted in partial fulfillment of the requirements of B.Sc. Degree in Computer Engineering

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ETHICAL STATEMENT

We, the undersigned students, certify and confirm that the work submitted in this project report is entirely our own and has not been copied from any other source. Any material that has been used from other sources has been properly cited and acknowledged in the report.

We are fully aware that any copying or improper citation of references / sources used in this report will be considered plagiarism, which is a clear violation of the Code of Ethics of the University of Jordan.

We further certify and confirm that we had no external help without the approval of our supervisor and proper acknowledgment when it is due. We certify and affirm that we never at any point commissioned a 3rd. party to do the work or any part of it on our behalf regardless of the amount charged or lack thereof. We also acknowledge that if suspected and thereafter proven that we commissioned a 3rd. party to do any part of this project that we risk failing the entire project.

We certify and confirm that all results presented in this project are true with no manipulation of data or fraud, that any statistics done, or surveys collected are conducted with the highest degree of scientific fidelity and integrity, and that if proven otherwise, we risk failing the entire project. We acknowledge that for any data collected, we have taken all the steps necessary in applying for proper authorizations if deemed necessary, and that all user data collected is subject to the utmost degrees of privacy and anonymity.

Replace student 1 name here:	Replace student 2 name here:
Replace date here:	Replace date here
Signature:	Signature:

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SUPERVISOR CERTIFICATION

I hereby certify that the students in this project have **successfully finished** their senior year project and by submitting this report they have fulfilled in partial the requirements of B.Sc. Degree in Computer Engineering. ☐

I hereby certify that the students in this project have not completed their senior year graduation project and **I do not approve** that they proceed to the discussion. ☐

I suspect that the students have **violated** one or more of the clauses in the **ethical statement** and I suggest that an investigation committee look into the matter. ☐

Prof. / Dr. / Eng.

Signature:

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DEDICATION

This is where you should thank people if you wish. Make it short – no more than two short paragraphs. You may also call this part Acknowledgements if you desire.

SYMBOLS, ABBREVIATIONS, AND ACRONYMS

This is where you should put all the symbols used and abbreviations (**must be sorted in ascending order**). It is stored in a table format same as the table of contents. Use “inserts a row” to add more entries. Remove this paragraph once done!

ABET	Accreditation Board for Engineering and Technology
DB	Department Board
EC	Examining Committee

ABSTRACT

The abstract is an overview that provides the reader with the main points and results, though it is not merely a listing of what the report contains. It is a summary of the essence of a report. For this reason, it should be crafted to present the most complete and compelling information possible. It is not a detective story building suspense as the reader hunts for clues and should not be vague or obtuse in its content.

A well-written abstract should state what was done and what results were found in a concise or short way (two to three paragraphs and less than 300 words). It also should avoid vagueness by stating specific results and be informative. Typically, it is self-sufficient and does not refer to the body of the report and it should make useful recommendations. Finally, it uses past tense to report what was done.

Table of Contents

LIST OF FIGURES

LIST OF TABLES

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CHAPTER 1
INTRODUCTION

The introduction states the problem and its significance, states the technical goals of the work, and usually contains background information that the reader needs to know in order to understand the report. Consider, as you begin your introduction, who your readers are and what background knowledge they have. For example, the information needed by someone educated in medicine could be very different from someone working in your own field of engineering.

The introduction is expected to have the following sections (you may combine or add more sections if needed). You may also change the titles of the sections. Note that for section heading you should use "Heading2"

1.1. Problem Definition

State problems that gave rise to the investigation. Also, if needed, provide any background information that the reader needs to know to understand the problem.

1.2. Proposed Solution

State a high-level description (a brief summary) of your solution/system. You may change the title of this section, if appropriate.

1.3. Project Deliverables

State the final deliverables of the project. Each deliverable must be measurable or testable.

1.4. Project Impact

State the impact of solving the project problem in a global, economic, environmental, and societal context.

1.5. Report Guide

In this subsection, we will provide details on how to format your report properly per the requirements of the department of computer engineering.

1.5.1. Text Style and Size

You must use the font "Times New Roman" throughout your report document. You must use size 12 for the paragraphs' text in this report. You must use the proper heading style for the chapter, section, and subsection titles. Chapter titles must use the "Heading 1" style with size 20. The section headings must use the "Heading 2" style with size 14. For subsection heading you should use "Heading 3". For the caption of the figures and tables you should use the "Caption" style. The caption of Figure 1 is formatted using the "Caption" style. Table 1 lists the style for the sections/subsections and captions. You have to follow these styles in your final documentation.

Table 1 - Project Report Element Styles

Element	Style
Chapter Title	Heading 1 – Size 20, bold, centered
Section	Heading 2 – Size 14, bold, left justified
Subsection	Heading 3 – Size 13, bold, left justified
Caption	Caption – Size 10 or 11, but be consistent, centered
List with bullets	List paragraph
Normal text	Size 12, full justification

Your final report must use 1.15 line spacing. This saves space, therefore paper and is better for the environment. You supervisor might ask you to increase it in the draft to give them space to write their comments, but do not forget to switch back to a line spacing of 1.15 before your final submission.

Do not leave lots of empty spaces between paragraphs. Try to justify your text to make it look beautiful and professional, and do not forget that your pages must be numbered. Always write in short sentences. Unlike Arabic, in English, we write short successive sentences that end with periods. If your sentence is more than two to two and half lines, break it!

1.5.2. Tables

You must reference each table in your text. That is; you must not place a table without mentioning them, describing them, or providing some information about what they are supposed to present. This sentence for example references Table 1. You simply write the complete word "Table" followed by the table name. Table numbers must be sequential throughout your report. Every table must have a caption. The caption text must be smaller than the text size (*e.g.*, size 11). The caption must briefly inform the user what the table is about. The caption must always be **centered above** the table. The table itself must also be **centered**. Do not place a caption at the end of the page, and have the table placed at the start of another page.

1.5.3. Figures

You must reference each figure in your text. That is; you must not place figures without mentioning them, describing them or providing some information about what they are supposed to illustrate. This sentence for example references Fig. 1. You simply write the shortened form of figure "Fig." followed by a dot then the figure name. Figure numbers must be sequential throughout your report. Every figure must have a caption. The caption text must be smaller than the text size (*e.g.*, 11). The caption must briefly inform the user what the figure is about. The caption must always be **centered underneath** the figure. The figure itself must also be **centered**. Do not place a figure at the end of the page and have its caption at the start of another page.

Your figures must be clear (high resolution) and placed in the page in a beautiful manner. You must not have pages with one small figure and lots of empty space around. At the same time, do not cram lots of figures in one page. Depending on your case and project type, you can place 4 to at most 6 figures in one page. You might in some cases treat these figures as subfigures if

they contain similar information, so you give them on figure caption, and have each subfigure named as (a), (b), *etc*. Fig. 2 illustrates an example combining similar figures in one main figure. If the figure does not add value to the text, refrain from using it altogether. If you want to reference a subfigure, use Fig. 2(a) format.

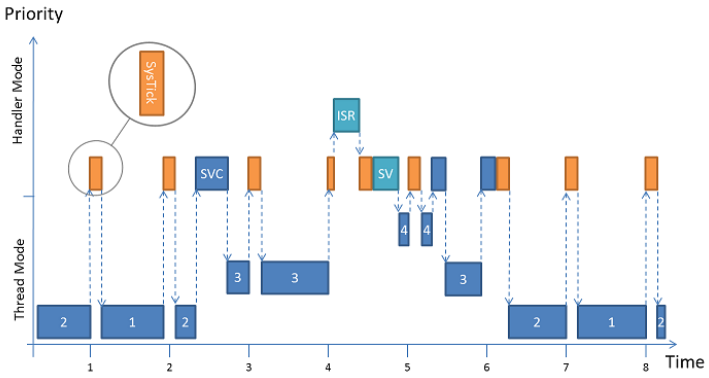

Figure 1 - Keil RTOS Scheduling

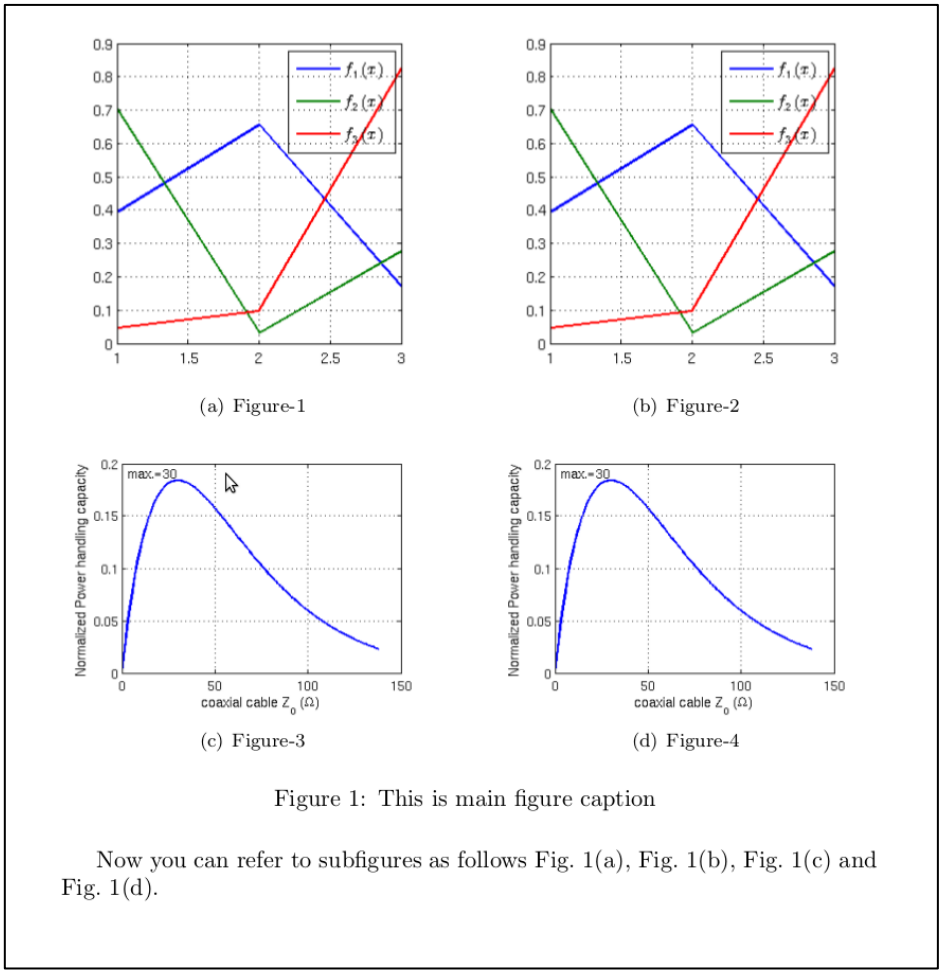

Figure 1: This is main figure caption

Now you can refer to subfigures as follows Fig. 1(a), Fig. 1(b), Fig. 1(c) and Fig. 1(d).

Figure 2 - Example of Having Subfigures

You must be consistent in writing your captions. If you choose to capitalize only the first word, then all your captions must follow this style. If you choose to capitalize every single word, then

be consistent throughout your report. The articles (a, an, the, and) or prepositions (on, in, at, over, *etc*. must not be capitalized).

If your figures represent experimental data, then you must have labels for the x-axis and y-axis clearly showing what you are representing and the units. You must use different colors to differentiate between the different lines/bars, *etc*. Use legends if necessary, to help the reader understand your graph, but this does not mean you do not fully explain them in text! You can generate beautiful plots in MATLAB, Python, or Excel. Fig. 3 shows a beautiful example on how to properly present scientific graphs.

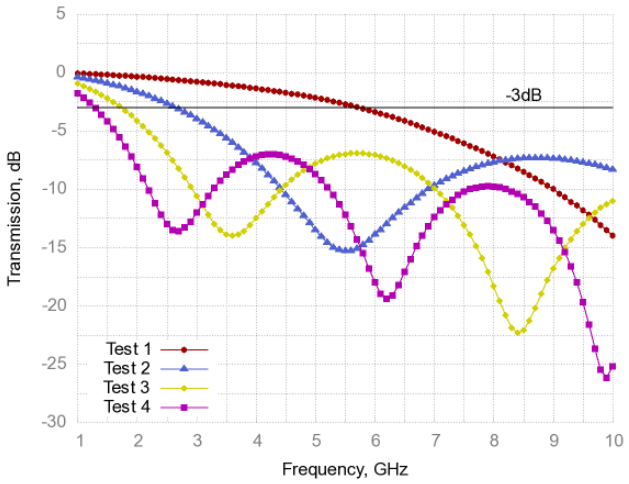

Figure 3 - Example Graph with Proper Graph Elements

1.5.4. Numbers, Acronyms, and Latin Words

All numbers below ten must always be written as words not numbers. For example, this sentence which contains 1 is wrong. The correct way to write it is to say this sentence has one example. You can write the numbers from 10 to 19 in number form or in words, but all other numbers must be formatted as numbers, say we have collected 1523 samples.

Latin acronyms, abbreviations, or words must be in italic (*e.g.*, *i.e.*, *etc.*, *et. al.*). There is a difference between "*e.g.*" and "*i.e.*"; *e.g.* stands for *exempli gratia* and means "for example." while *i.e.* is the abbreviation for *id est* and means "in other words." They are used mid-sentence and must be lower case. In general, you add a comma after *e.g.* and between each subsequent example if there is more than one item in your list. Look at these two examples:

- "I like citrus fruits, *i.e.*, the juicy, edible fruits with leathery, aromatic rinds."
- "I like citrus fruits, *e.g.*, tangerines, lemons, and limes."

In the first case, we are not giving examples for citrus fruits but rather describing them in other words. In the second example, we are listing examples of citrus fruits.

Many times, we encounter technical terms that have common acronyms, such as long-short term memory (LSTM) cells that are a type of recurrent neural networks (RNN) in the domain of artificial intelligence (AI). You must write the acronym the first time you encounter it in your report, add it to the abbreviations and acronyms list, then you can refer to these terms by their acronym only.

1.5.5. Equations

Every equation must be referenced in your text as close as possible as to where it is written. All equations must be numbered. For example, Eq. 1 that describes the relativity equation of Einstein should be written as:

$$E = mc^2 \tag{1}$$

Where *E* is the energy (in Joules), *m* is the mass (in Kg), and *c* is the speed of light (in m/s)

Notice that the equation itself is left-justified while the equation number in parenthesis is to the rightmost part of the line. Note also that we should not leave the equations ambiguous, if not explained before, you must explain or specify the equation variables and their units, and if they take any initial conditions.

Your equation numbers must be sequential throughout your report (1), (2), (3), *etc*. or can be written per chapter (3.1), (3.2), (3.3), *etc*. In any case, be consistent in your choice throughout your report.

1.5.6 Algorithms or Pseudocodes

You must explain the algorithm in your text and not only list it in an Algorithm listing. Do not assume that the reader will understand your algorithm or pseudocode on their own. It is better to explain your algorithm sequentially while referring to the line numbers that implement the functionality you are explaining. You reference your algorithm by saying Algorithm 1 presents a sample algorithmic listing. You must number your algorithms or pseudocode listing sequentially throughout your report.

At the beginning of each algorithm, you must clearly list and explain the inputs and outputs of your code. If prior preprocessing is needed, also provide it in the "Pre" part. You must number the lines that correspond to functional statements.

Algorithm 1: Algorithm example

Input: $\mathbf{m}$, such that $\mathbf{m}_i$ is the position of the i'th monitor
$\mathbf{l}$, such that $\mathbf{l}_i$ is the position of the i'th landmark
$\mathbf{p}^m$, such that $\mathbf{p}_i^m$ is the ping latency from monitor i to the target
$\mathbf{p}^l$, such that $\mathbf{p}_i^l$ is the set of ping latencies to landmark i

Pre: Compute $\hat{p}_m(d \mid l)$, an estimator giving the likelihood of the target being distance d away from the monitor, given that the monitor records a latency of l to that target. Implemented by training a KDE using $\mathbf{p}^l$.
Compute $\hat{p}_l(d \mid v)$, an estimator giving the likelihood of the target being distance d away from the landmark, given a Canberra distance of v between the target and the landmark, using training targets.

Output: Most likely location of the target

Function *Likelihood(*x, $\mathbf{v}$*)*
    MonitorScore $\leftarrow \sum_{i=0}^{|\mathbf{m}|} \log \hat{p}_m(d(x, \mathbf{m}_i) \mid l_i)$;
    LandmarkScore $\leftarrow \sum_{i=0}^{|\mathbf{l}|} \log \hat{p}_l(d(x, \mathbf{l}_i) \mid \mathbf{v}_i)$;
    return MonitorScore + LandmarkScore
end

$\mathbf{v} \leftarrow$ {canberra_distance($\mathbf{l}_i, \mathbf{p}^m$) | $\mathbf{l}_i \in \mathbf{l}$}
$\mathbf{C} \leftarrow$ Constraint-Based-Geolocation($\mathbf{m}$, $\mathbf{p}^m$);
$\mathbf{C}_\mathbf{l} \leftarrow \{m \in \mathbf{m} \mid \mathbf{C}$ contains $m\} \cup \{l \in \mathbf{l} \mid \mathbf{C}$ contains $l\}$;
return argmax$_{x \in \mathbf{C}_\mathbf{l}}$ Likelihood(x)

CHAPTER 2
RELATED WORK

This chapter gives the theory or previous work on which the experimental work is based on. Here you give more details about previous products, projects, or similar research publications. Make sure to cite your sources of information and list the references at the end of your report. This is an example of a book citation [1], a web page citation [2], a conference paper citation [3], and a journal article [4]. Your references must not be after the period (this is wrong. [5]).

Your citations must follow the IEEE format. **Zotero** is a beautiful plugin used widely in academia to facilitate keeping track of references and easily adding them to your documents (*e.g.* Word, Latex, *etc*.).

CHAPTER 3
SOLUTION DESCRIPTION AND IMPLEMENTATION

This chapter describes the technical details of the major pieces of your proposed solution (*e.g.*, hardware part, software part, *etc*.) and recaps the essential steps of what was done. You may expand this chapter into multiple chapters if appropriate. Also, change the title of each chapter, as appropriate.

General guidelines for this chapter:

- Provide sound and correct description of your solution;
- Include helpful block diagrams and charts;
- Include functional and non-functional requirements.

CHAPTER 4
RESULTS AND DISCUSSION

This chapter presents the results or the final deliverables of the project and includes tables and/or graphs and an interpretation of what the results show. When discussing your results, be sure to explain what the results show, analyse uncertainties, note significant trends, compare results with theory and describe limitations and assumptions.

4.1. Subsection

4.1.1. Some Text Here

CHAPTER 5
CONCLUSIONS AND FUTURE WORK

5.1 Conclusions

This section summarizes the achieved project deliverables and the important results in your work. Be sure to spend some time thinking carefully about your conclusions. Be sure to also consider how your conclusions will be received by your readers.

5.2 Future Work

This section includes the recommendations that you think must be taken in order to improve your solution. These directions may include expanding existing components of your system or completely adding new knowledge. Note that at this point in your report you are asking the reader to think or do something about the information you have presented. In order to achieve your purposes and have your reader do what you want, consider how they will react to your recommendations and phrase your words in a way to best achieve your purposes.

REFERENCES

[1] D. Patterson and J. Hennessy, Computer Architecture: A Quantitative Approach, 5th edition, Morgan Kaufman, 2011.

[2] Wikipedia, "Fast Fourier Transform," [Online]. Available: https://en.wikipedia.org/wiki/Fast_Fourier_transform.. [Accessed September 2019].

[3] V. Agarwal, F. Petrini, D. Pasetto and D. A. Bader, "Scalable Graph Exploration on Multicore Processors," in *ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis*, New Orleans, LA, USA, 2010.

[4] G. D, "Chip makers turn to multicore processors," *Computer*, vol. VI, no. 5, pp. 11-13, 2005.

APPENDICES

Appendices may include the following sections:

- **Project Time Chart (*e.g.*, Microsoft Project Gannt Chart)**
- Raw Data (if applicable)
- Long Mathematical proofs (if applicable)
- Source Code (if applicable)
- Datasheets (if applicable)
- User Manual (if applicable)
- Presentation Slides (**mandatory**): must contain your presentation slide (two slides per page). However, this appendix is only required in the final documentation submitted to the department after students finish their project presentation.
- Project CD Soft Copy (**mandatory**):
    - CD submitted for examining committee members must contain a pdf version of your project documentation
    - CD submitted with the final documentation must contain pdf versions of your (i) project proposal; (ii) project 1 progress report; (iii) project documentation; and (iv) presentation slides.