GEN 280: Technical Reports

Week 1: What is a technical report and why write one?

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Spring 2022

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- **May, 2017 - May, 2018:** Worked as a Postdoctoral Researcher in KOREATECH University, South Korea.
- **September, 2019 - September, 2021:** Worked as a Senior Reasearch Fellow in Soft Robotics, University of Salford, UK.

Research Interests: Robotics, Soft Robots, Robot Modeling and Control, Robot Vision, Human-Robot Interaction.

Lecture Outline:

1. Technical report writing: why does it matter?
2. Reasons to communicate clearly
3. What is a technical report?
4. GEN 280 Course Assignment

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Technical report writing: why does it matter?

Communication disasters: The Space Shuttle Challenger Disaster

The Space Shuttle Challenger accident, 1986

- In January 1986, the Space Shuttle Challenger burst into flames 76 seconds after take-off, killing all seven people on board.
- The cause of the explosion was the fail of the seal of the two rubber O-rings in cold temprature.

Technical report writing: why does it matter?

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The Space Shuttle Challenger accident, 1986

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"That testimony reveals failures in communication that resulted in a decision to launch 51-L based on **incomplete and sometimes misleading information**.*"*

Technical report writing: why does it matter?

"It's not what you say, John, it's how you say it."

Technical Writing

Technical writing is a type of specialized written communication intended to explain complicated concepts with simplified language.

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Reasons to communicate clearly

1. Be understood

Communicating well helps other people to understand your ideas and contribute to making things happen

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3. Meet your employer's expectations

Your written work will be read by seniors that will influence your future career.

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4. Make the most of your university assessments

Produce a well-written technical engineering report early in your studies will save you a great deal of time and effort

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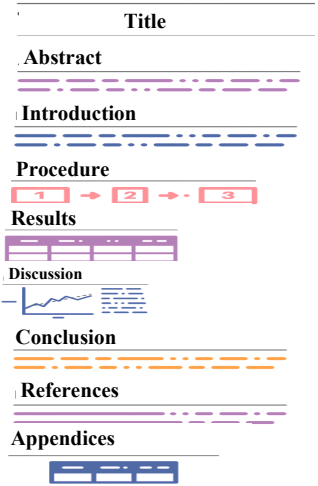
What is a technical report?

Anatomy of a technical report

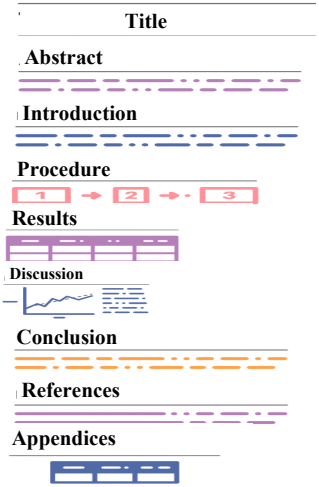


What is a technical report?

Anatomy of a technical report

Title

The title provides a name for the report. It should be a few words that describe the content of the document, which would typically involve the aim of what is trying to be achieved.



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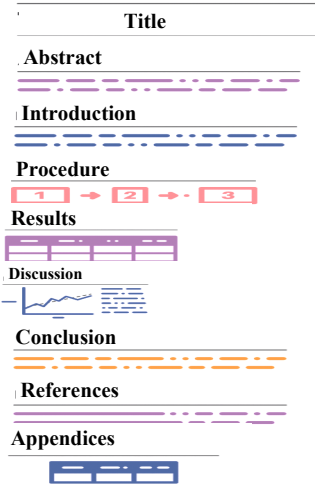
- Every word in your title is important.
- Attract the right kind of readers rather than discouraging them.
- Writing good titles represents about 50% of the skills vital to report writing.

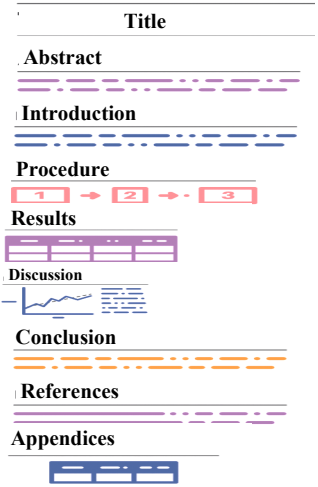


What is a technical report?

Anatomy of a technical report

Abstract (Executive Summary)

It is a **concise review** of all the important information included in the report. The purpose of an abstract is for a reader to determine if they would like to read the report in more detail or not.

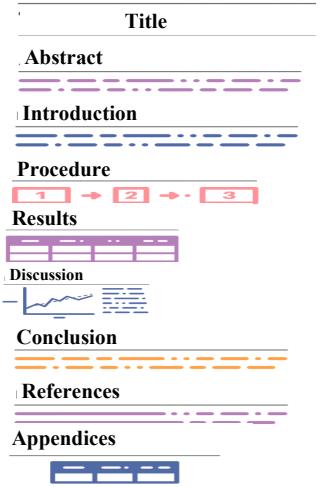


What is a technical report?

Anatomy of a technical report

Introduction

An introduction is a **review of the background** and context of the work that is presented in the report, setting the reader up to understand why you have chosen to do the work you are discussing.



What is a technical report?

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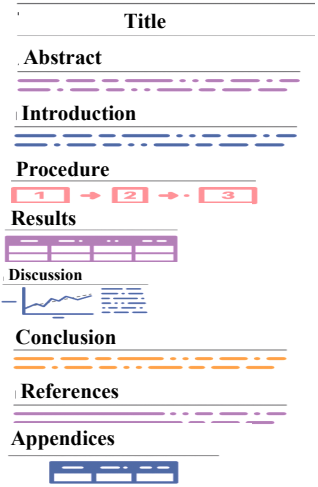
Procedures (Methodology)

It describes the methods or equipment **used to achieve the outcomes** of the work. It includes the steps that were performed to achieve the results, with enough detail to **allow the reader to repeat what was done**.



What is a technical report?

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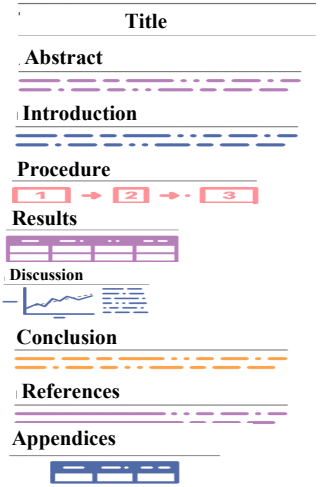
Results

The results section presents **the outcomes of the work**, describing what the **main findings** of the work are rather than the details of every result.



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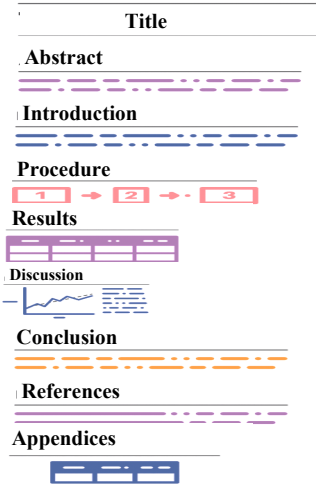
Discussion

The discussion is the **most important section** of a technical engineering report. It is the opportunity for the writer to **analyse results**, **express their opinions of the work**, and provide an **interpretation** of the significance of the outcomes.



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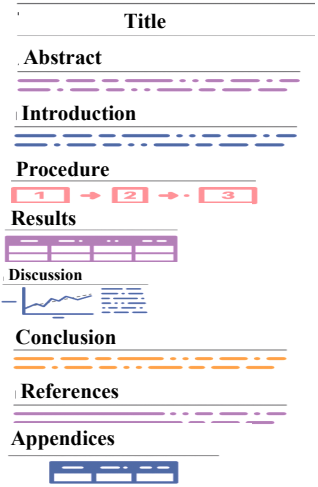
Conclusion

A conclusion is a **short review** of the results that have been deduced and the impact of the work. It could contain a **future work** section to suggest what could be added to this work in the future.



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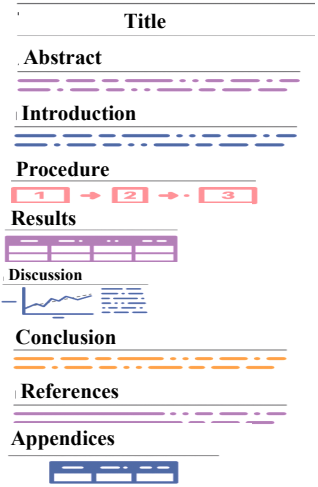
References

References are detailed **lists of external resources** that have been indicated and cited in the main body of the report that readers may want to track down.



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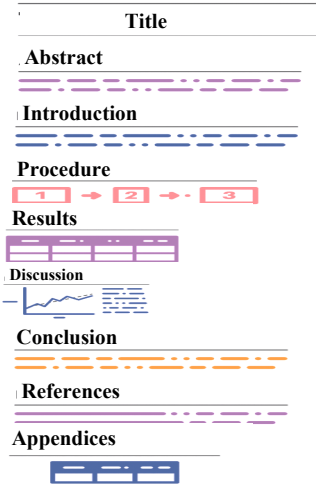
Appendices

These include any **supplementary information** that is worth the reader having access to, but not directly relevant to the main points raised in the report. For instances, proofs, derivations, codes, etc.



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Assignment, **Due date 28th. of April, 2022**

Assignment (15/50)

1. Go to google scholar and download a research paper on one of the the following topics:
   - Applications of robotics in healthcare.
   - Soft robots in medical applications.
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Resources

- Getting started in LaTeX for writing research articles. (Arabic)

Questions?

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