

OENG1118 Sustainable Engineering Practice and Design

A Guide to Writing Engineering Reports

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Background

- Besides technical details, grade for group report assignment depends on the quality of your report:
 - Report structure
 - Appropriateness and level of detail in each section
 - Reference citation
 - Clarity of English expression

Expectations: Document quality

- You are expected to demonstrate knowledge of the mechanics of compiling a technical report
 - Section structure, page numbers, Tables/Figure captions, reference citation and listing
- Not expecting everyone to write as though English is their first language
 - your English expression must be strong enough to clearly communicate your message

Technical Reports

- Commonly aim to
 - provide information
 - support a finding
- Structure of report is determined by purpose, length & complexity

Six fundamental principles

- Write to level of audience
- Use clear concise language
- Present findings & conclusions in a logical sequence
- Clearly show how findings support conclusions & recommendations
- Use tables & figures to portray a picture of results, concepts or data
- Get to the point

Common contents

- * Title Page
- * Summary or Executive Summary
- Acknowledgments
- * Table of Contents
- List of Tables/ List of Figures
- * Introduction
- * Body or middle sections with subheadings
- * Conclusions
- * References
- Glossary
- Appendix (or Appendices, if more than one)
- Index

Not all the items listed above are mandatory. Which items do you think are optional?

Title Page

- Title - brief but descriptive
- Author
- Client - for whom
- Date

Summary or Executive Summary

- Brief but state what the report covers & indicate conclusions
- Usually 1 - 3 paragraphs
 - Desirable maximum is one page (sometimes longer depending on the length of the report)

What's covered in the Summary?

The summary

- states the topic of the report
- outlines briefly the method
- states the key findings and conclusions

The summary does NOT

- Only provide general information
- refer to later diagrams or references

Table of Contents

- Sets out the sections and subsections and their corresponding page numbers
- Usual conventions for numbering the pages:
 - Number all the preliminary pages in lower-case Roman numerals (i, ii, iii, iv,...).
 - Number all the remaining pages of your report with Arabic numerals (1, 2, 3, 4,...).
 - Make page 1 the first page of your Introduction.

Introduction, Body & Conclusions

These sections basically answer six questions

1. What was the objective or purpose of the study?
2. Why was the study necessary?
3. When, where and how was it conducted?
4. What were the findings?
5. What conclusions were drawn?
6. What recommendations were made?

Introduction = 1 & 2

Body = 3 & 4 (series of chapters or sections)

Conclusions = 5 & 6

Introduction

- Provides the background information needed to understand the rest of your report
- The introduction provides:
 - the background to the topic of your report
 - a clear statement of the purpose of the report or where appropriate the specific aims or objectives of the study
 - a brief outline of the structure of the report

Body of the report

- Presents the information from your investigation
- Organises information logically under appropriate headings
- Conveys information in the most effective way for communication using:
 - figures and tables
 - bulleted or numbered lists
 - formatting to break up large slabs of text

Incorporating Figures and Tables

- Give all figures a title and a number, for example:
Table 1 Annual road fatalities across Australian states.
Figure 3: Age distribution of commuter cyclists
- The title of a table goes above the table.
- The title of a figure goes below the figure.
- All Figures and Tables should be referred to in the text BEFORE they appear in the document

Conclusions

- Relate directly back to the aims of the work
- Restate concisely the major findings of your investigation

References

- List all the details of the sources of information referred to in the report
- Acknowledge sources
- Accuracy essential
- Use an author-date referencing system (e.g., Harvard)
- For full details of how to cite all sorts of references (books, papers, web sites etc.) see the on-line tutorial on the library web site:

<http://www1.rmit.edu.au/library/referencing>

References

- The two parts to referencing are:
 1. the **citations** in the text of the report
 2. a **list of references** in the final section.

Citations show that information comes from another source.

The **list of references** gives the details of these sources.

Citing References

- In the text

A recent review of high speed rail technology (Wilson, 1994) highlighted the impressive safety record of the French TGV.

- In the reference list

Wilson, A.G., 1994, Advances in High Speed Rail Technology, *Transport Engineering in Australia*, 2(1), pp. 38-47.

- Multiple publications by an author in one year

Wilson (1994a), Wilson (1994b)

Appendices

- Material not essential to, but supporting information in the body
- Data, worked examples

Is the English Correct?

- Proper English
 - accepted usage of most educated people of the day
 - usage changes slowly with time
- Spelling
 - Intolerance of poor spelling by employers

Is the English Correct?

- Grammar
 - Some readers are very strict about grammar, others are not
 - use of correct grammar creates much more professional image

Sentence Length

- If a sentence contains more than 17 words, or two commas, the reader will probably not understand it on first reading
- Do not try to cram too many ideas into one sentence
- In general, shorter sentences convey meaning more effectively

Paragraphs

- Contain groups of sentences that are homogenous in subject matter and are arranged in a suitable sequence
- Ensure flow of ideas from one sentence to the next and flow of topics from one paragraph to another

Abbreviations

- Define all abbreviations (initials) the first time they are used in the text.

The Institute of Transportation Engineers (ITE) annual conference is being held in May.

- For units of measurement, use abbreviations with numerals only
 - use 12 m. not twelve m.
rather twelve metres

Numbers in the text

- Do not use numerals to start a sentence

NOT: 12 vehicles were tested

BUT: Twelve vehicles were tested.

- Preferably spell out numbers less than ten

Further tips on report writing

- RMIT Learning Lab

<https://emedia.rmit.edu.au/learninglab/content/reports-0>

Conclusions

- Learn the fundamentals of structuring an engineering report
- Pay attention to spelling and grammar
- Sound report writing skills will help you at university and in professional practice