



College of Engineering
Department of Environmental Engineering

Final Year Project I (EnEg5107)

lecture material

By: Seble K.

Content

- 1. Technical Report writing**
- 2. Research Methods**
- 3. Proposal writing**

Technical Report writing



- A **technical report** is a formal report designed to convey technical information in a clear and easily accessible format.
- It is one of the major forms of communication in different professions.
 - Engineering: Field visit, site inspection, design projects.....
 - Academics : it is the conventional format for reporting the results of your research, investigations, and design projects.
- are documentation of a technical and engineering activity so they should reflect this professional and technical attitude.
- ❖ The ability to produce a clear, concise, and professionally presented report is a skill you need to develop

□ Steps in technical report writing

1. Set the objective

2. Format

- Sections and subsections
- References
- Appendices

3. Writing

- Spelling
- Punctuation
- Sentences
- Paragraphs
- Formality

4. Diagrams

- Positioning
- Tables
- Graphs
- Diagram references

5. Finishing the report

- Summaries
- Abstracts
- Table of contents
- Title page
- Appearance
- Checking

6. Resources

Technical Report writing



1. Set the objective

- Who are you producing the report for?
- How can you bridge the gap between what the reader knows already and what they need to know, in order to produce the desired response?
- Why does a particular reader need this particular report?
- What is the desired response from the reader?

2. Format

- Sections and subsections
- References
- Appendices

In this section you should answer the following questions:

1. What skills and qualifications you think that you have gained from the Internship?
2. What kind of responsibilities you have undertaken during the Internship period?
3. How do you think the Internship will influence your future career plans?
4. How do you think the Internship activities that you carried out are correlated with your classroom knowledge?

Technical Report writing



❑ Sections and subsections (Headings)

❖ There are no absolute rules on report production because every report must be adapted to the needs of its reader.

➤ Essential Contents of Technical Reports (Format)

- Title Page
- Table of Contents
- Executive Summary/ Abstract
- Introduction
 - body (Methods, design approaches, results/**Findings** - Conclusions, discussions, design approaches)
- Conclusion & Recommendations
- References /Bibliography
- Appendices

NB. can be formulated and organized by the reporter or given by the company

Example ; AASTU Internship and IETP report format

Technical Report writing

➤ Heading (titles)

- Major headings, such as (INTRODUCTION), should be in capitals, Times New Roman and font size 14 should be used .
- Secondary headings such as (Objectives) the first letter should be capitalized, bold and font size 12 should be used, and
- Tertiary heading should be in Times New Roman font size 12 should be used.

❖ Having headings with no more than three levels is advised.

i.e. 1: main heading , 1.1: secondary heading , 1.1.1 : tertiary

Technical Report writing

General guideline - Microsoft Word

FILE HOME INSERT DESIGN PAGE LAYOUT REFERENCES MAILINGS REVIEW VIEW EndNote X9

Clipboard Font Styles

Calibri Light (16) A A Aa B I U abc x₂ x² A a A

1 AaBbCcI 1.1 AaBbCcI 1 AaBbCcI 1.1 AaBbCcI AaBbCcI AaBbCcDc AaBbCcDc

Heading 1 Heading 2 Title Subtitle Subtle Em... Emphasis

1 Heading 1
1.1 Heading 2
1.1.1 Heading 3
1.1.1.1 Heading 4
1.1.1.1.1 Heading 5
1.1.1.1.1.1 Heading 6
1.1.1.1.1.1.1 Heading 7
1.1.1.1.1.1.1.1 Heading 8
1.1.1.1.1.1.1.1.1 Heading 9

None 1) 1.1
a) 1.1.1
i) 1.1.1.1

Article I. Heading 1
Section 1.01
(a) Heading 3

Chapter 1 Heading 1
Heading 2
Heading 3

Change List Level
Define New Multilevel List...



Technical Report writing

❖ Why appendices

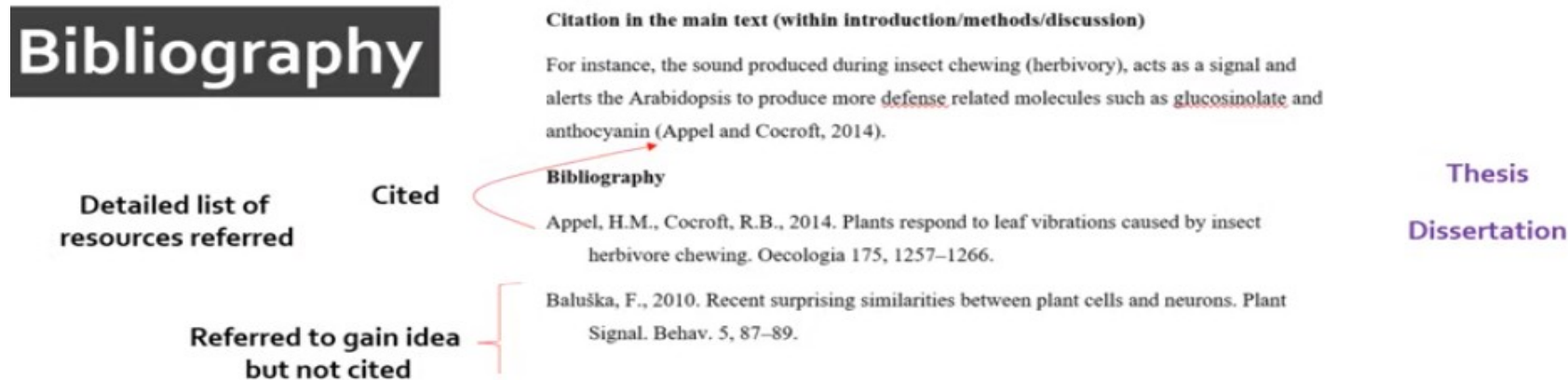
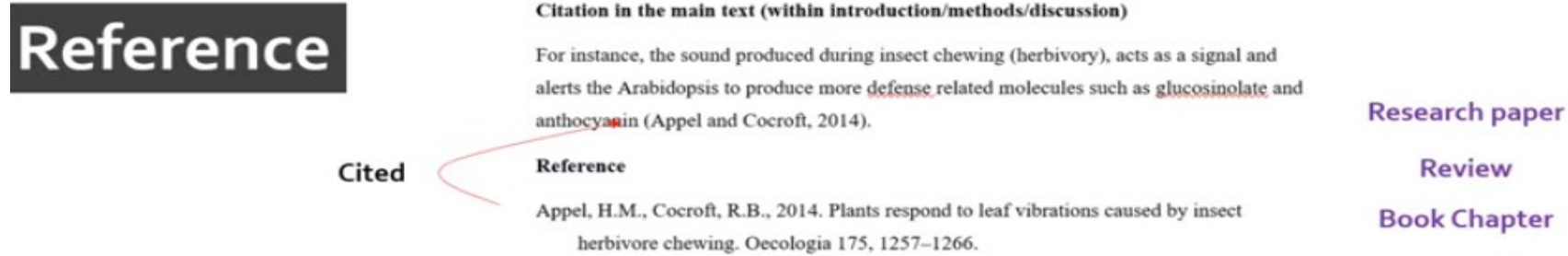
- Reports are often written for multiple readers, for example, technical and financial managers.
- Writing two separate reports would be time-consuming and risk offending people who are not party to all of the information.
- ❖ One solution to this problem is strategic use of appendices .
 - questionnaires
 - Detailed calculations / sample calculations
 - Standard /guidelines
- ❖ Appendices should be distinguished from the main text by a letter, and if necessary, a decimal notation after the letter:

Appendix A2.4 (This is the fourth subsection of the second major section of the second Appendix)

Appendix B2.4 (This is the fourth subsection of the second major section of the second Appendix)

Technical Report writing

□ **References /Bibliography:** - both refers to the literature you



Technical Report writing



- List of materials that you directly used in your report such as algorithms, experimental results, figures, and/or tables that are not originally yours

- Books
- Papers
- Websites

Reading assignment
on how to cite those
different sources

Technical Report writing



- Accurate references improve the credibility of your document, making your report more convincing. (both In- text and at the reference part)
 - Make a note of references as you go along, so you don't forget where your information came from, as that's where errors can creep in.
- There are various referencing systems and you should use the system preferred by your company or university. **(IEE)**

Technical Report writing

- **In the text**, references are shown by a number in square brackets [1] and the full references are listed in order at the end of the report (Reference part):
 - **Reference** /at the end of the document
1. Van Emden, J. (2005). *Writing for Engineers*. 3rd ed. Basingstoke: Palgrave Macmillan.
 2. Hawley, R. (1996). Leadership challenges in an engineering environment. *Engineering Management Journal*, 6 (5), pp. 217-231

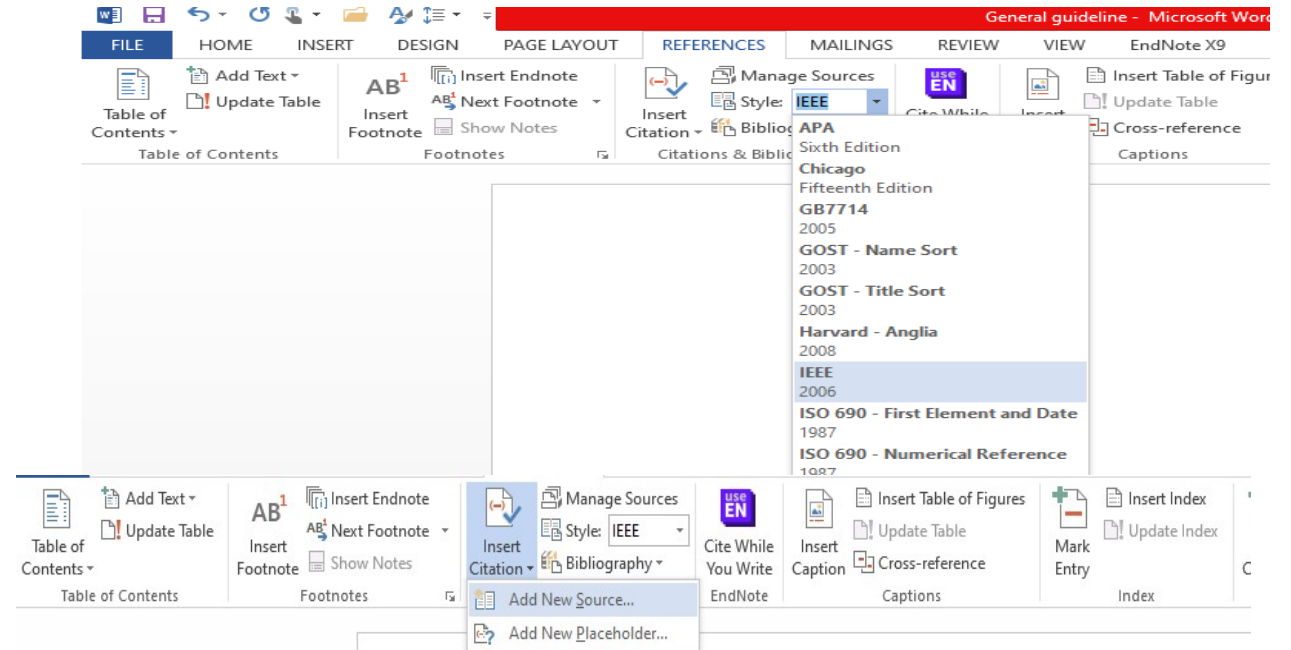
Technical Report writing

- For online materials, cite them in the same style as other bibliographical sources, but indicate it is online and provide the URL and the date accessed.
- The IET, (2019). *The Institution of Engineering and Technology's official website*. [online] Available at <http://www.theiet.org> [Accessed 13 Mar. 2019].

Technical Report writing

➤ you can use;

- Word referencing system
- Software's such as endnote and Medley



Create Source

Type of Source: Book Language: Default

Bibliography Fields for IEEE

* Author [] Edit

☐ Corporate Author []

* Title []

* Year []

* City []

State/Province []

Country/Region []

* Publisher []

Editor [] Edit

Volume []

Number of Volumes []

☒ Show All Bibliography Fields

Tag name: Placeholder2

OK Cancel

Technical Report writing



3. Writing

- Spelling
- Punctuation
- Sentences
- Paragraphs
- Formality

Refer to your English (fresh man course)

Technical Report writing



4. Diagrams ; which include tables, graphs, photographs and line drawings — are an essential part of many technical reports.

➤ They can summaries a lot of information or clarify a situation or complex details in a way that continuous text can't.

- Positioning
- Diagram references
- Labeling

Technical Report writing

- Graphs are used to show trends or give accurate technical information. If graphs are to be compared, use the same scale for each.

Table caption
Table: 1:1 water quality standards

Parameters	Units	Value
BOD	mg/L	250
COD	mg/L	300



- If the contents of tables or the entire table is adopted from other source it has to be cited
- If the figures are your own source has to be maintained

Figure caption

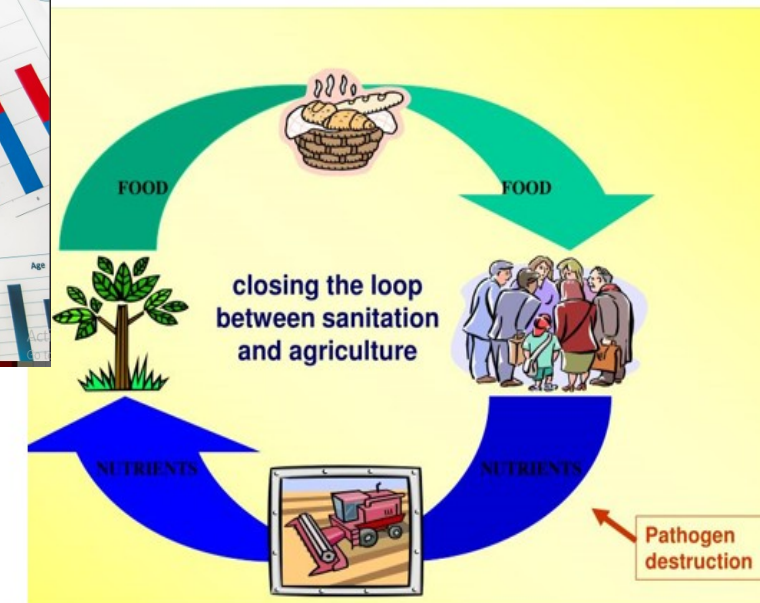


Figure 1:1 principles closing the loop (Source)

Technical Report writing



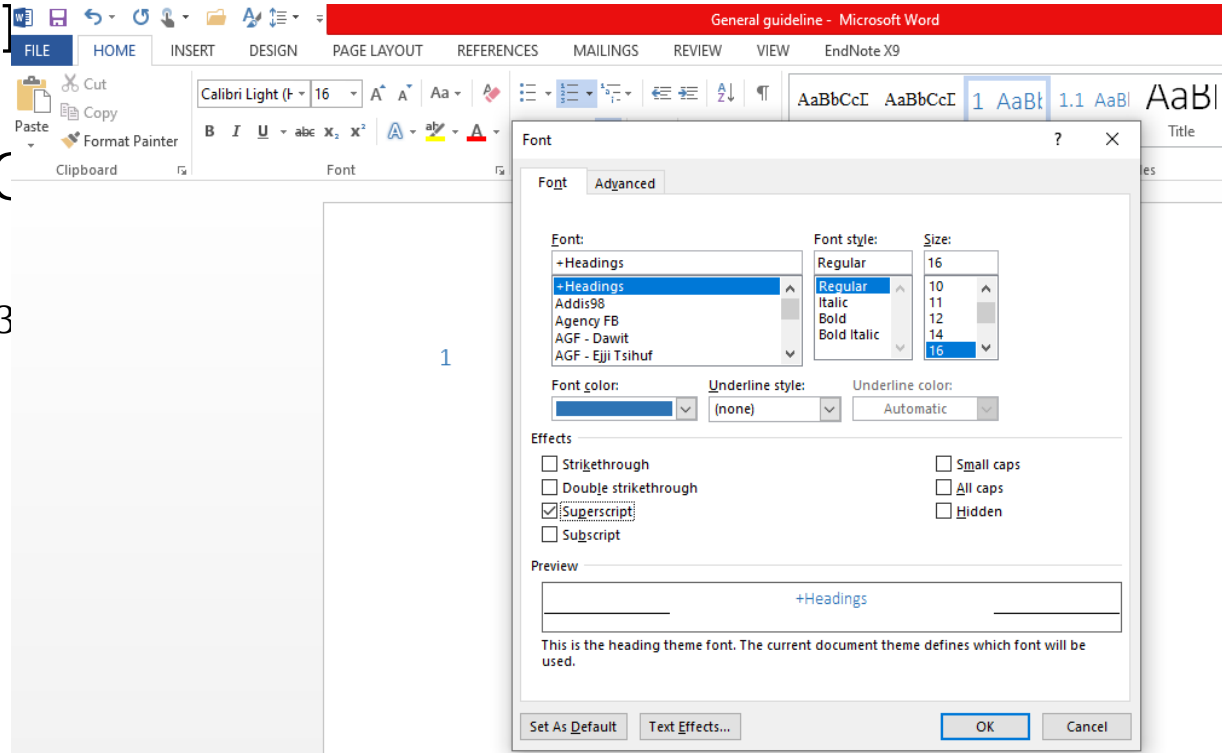
- In mathematical texts and chemical formulas: superscript and subscript must be clearly shown

Example ; CaCO₃ **x**

m₃ **x**

CaCO₃

m³



Technical Report writing



➤ **Finishing the report**

- Summaries
 - Abstracts
- } **Both are short and concise form of a research/ project**
- Table of contents
 - Title page
 - Appearance
 - Checking

Technical Report writing



➤ Summaries

➤ A summary gives a general picture of the report for those who want to be reminded of what they have read or for those who will never read the whole report.

➤ It makes the report's 'answer', its conclusions

and recommendations immediately available

For this reason, it's the section that is read

by the majority and the most senior readers

(often the decision makers) who might not

have the time or interest to look into the details

Summary

Present at the end/ separate document

Summary

Background

Problem/knowledge gap

Purpose

Objectives

Method

Key findings Interpretation

Conclusion

References

Shortened but more detailed than abstract

Key points from each section of document

2-3 pages (1000-2000 words)

Technical Report writing



Abstracts

➤ Abstracts are used to bring together the report and potential readers, attracting readers who might not necessarily consider the report relevant to them.

Abstract

➤ The abstract selects areas of interest covered by the report and may include a list of key words, so that your report is more discoverable.

Abstract

Very concise
300 words

Background

Problem/knowledge gap

Purpose

Method

Key findings

Conclusion

Technical Report writing



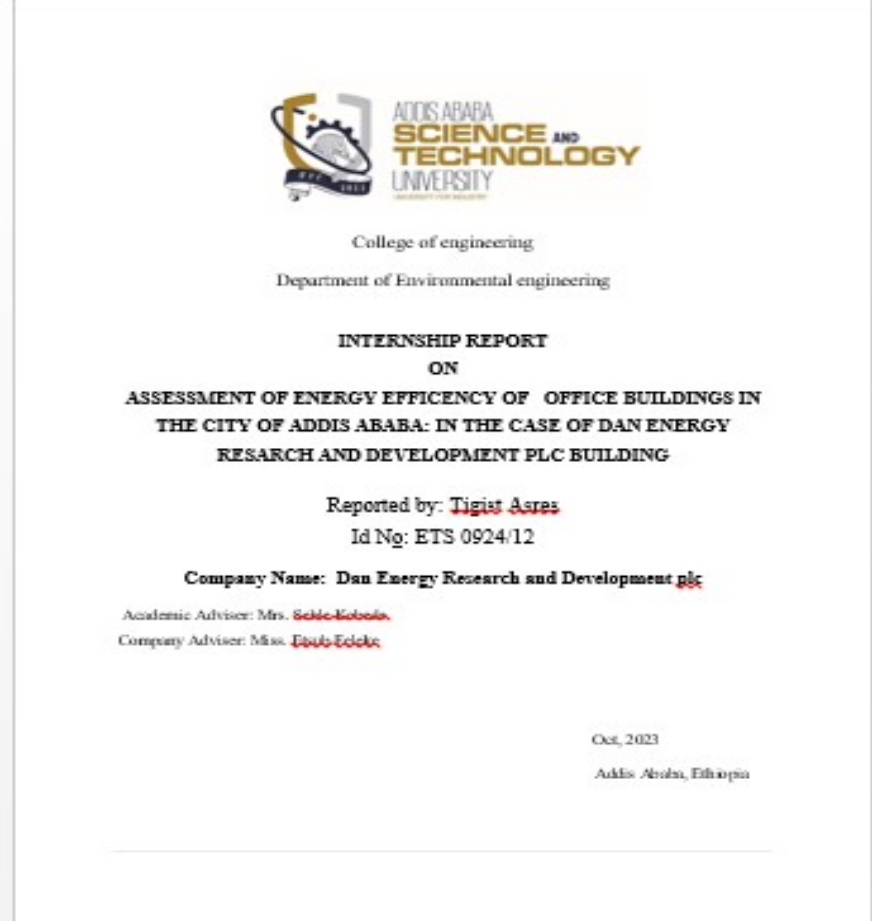
➤ **Table of contents**

- List each chapter or section with its constituent headings, section and sub-section numbers, as well as page numbers.
- This helps the reader to select a particular sub-section of interest and find it easily, at the same time as seeing its connection to what comes before and after it.

Technical Report writing

➤ **Title page** : As the title page is the first page that the reader will see, make sure it includes the relevant details:

- Title
- Author's name
- Report reference number
- Date



The image shows a title page for an internship report. At the top, there is the logo of Addis Ababa Science and Technology University (AASTU) and the text "ADDIS ABABA SCIENCE AND TECHNOLOGY UNIVERSITY". Below this, it says "College of engineering" and "Department of Environmental engineering". The title of the report is "INTERNSHIP REPORT ON ASSESSMENT OF ENERGY EFFICIENCY OF OFFICE BUILDINGS IN THE CITY OF ADDIS ABABA: IN THE CASE OF DAN ENERGY RESEARCH AND DEVELOPMENT PLC BUILDING". The author is "Reported by: Tigist Asres" with ID No: ETS 0924/12. The company name is "Dan Energy Research and Development plc". Academic Adviser: Mrs. Seble Kolobela. Company Adviser: Miss. Tebebe Tekle. The date is "Oct, 2023" and the location is "Addis Ababa, Ethiopia".

ADDIS ABABA
SCIENCE AND
TECHNOLOGY
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INTERNSHIP REPORT
ON
ASSESSMENT OF ENERGY EFFICIENCY OF OFFICE BUILDINGS IN
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Reported by: Tigist Asres
Id No: ETS 0924/12

Company Name: Dan Energy Research and Development plc

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Oct, 2023
Addis Ababa, Ethiopia

Technical Report writing



❑ Characteristics of good report ;

- It is easy to recognize
- Has a title which is precise and informative
- Has a format which is logical to the reader, with headings to indicate the content of each section.
- Diagrams and tables are well-presented and clearly labelled
- Has both in text and re