Mekelle University - Mekelle Institute of Technology

Thesis Report Writing Guideline

Your thesis is the most important part of your study. Therefore, you should give special priority and be hard worker as it is so important for your future career. Writing what you have done in your thesis work may be even harder than the actual work, especially for beginners. Knowing this fact may help you not to submit hasty and poorly written thesis reports. Remember that thesis report format /content may slightly differ from university to university thought it plays the same role, i.e. to present your work in a clear, transparent and elaborate way. In this guide line, we will briefly see the contents of your thesis report and what you should write in each section of the report during your thesis work in MU-MIT. Departments and advisors can slightly modify the template according to their specific needs. However, the core contents of a thesis report should comply with this guideline (template).

Your thesis report must contain the following sections in order:

1. Title
2. Abstract
3. Acknowledgement (optional)
4. Table of contents
5. List of figures (optional)
6. List of acronyms or abbreviations (optional)
7. List of Tables (optional)
8. Introduction
9. Background and Related work
10. Design and Implementation
11. Results and Discussions
12. Conclusions
13. Future work (optional)
14. References
15. Appendices (optional)

The contents of some of the sections (listed above) are described as follows.

1. Abstract

The purpose of an abstract is to give the reader a good summary of what the thesis is about and the major results or findings. In abstract, answers to the following questions must be compiled in a single paragraph:

- ***What is the thesis about****?* : Briefly describe the area of study. You can start with "The thesis focuses on analysis of / investigation of / design of / study of …….. "
- ***What problem are you trying to solve/ why are you doing it?*** : include a brief summary of the problem statement and point out the main objectives of the thesis. But be careful not to write more than expected here. A more detailed problem statement and motivation are expected to be written in the introduction section. Further details regarding significance of your work is expected be explained in the background section (after literature review).
- ***What did you do and how did you do it?*** Briefly mention the main tasks you have done, and briefly explain the methods, tools (for example MATLAB), and assumptions (or models) you have used to do your thesis. (For example: " A closed-form mathematical expression of the system has been obtained and simulation is done in MATLAB").
- ***What are the major results of your thesis*****?** Explain the major results, findings, and implications of your results in maximum of two or three sentences.

2. Introduction

Introduction is all about what a reader can expect in the document, in a concise manner. However, the introduction contains all the major points that are actually covered in the document. Introduction is like showing a trailer (advertisement) of a movie to entice a reader to go through the entire document. The points that must be covered in introduction are ()

- Brief introduction and description of the area of study
- Problem statement of the thesis (in more detail than what you wrote in the abstract). In this part, try to explain what existing problem motivates you to undertake the research/ project, and why is it worthy solving the problem.
- Objective of the thesis /project: explain the goals of the project in detail.
- Brief explanation of how you solved the problem and the main tasks you have done
  Note that, in this case, it may be similar to what you wrote in the abstract. Try to write it in different way, in a way the reader attracts more. However, it is not really a problem if it is similar to the abstract. Because the abstract is considered to be a separate document and must include summary of the whole thesis report.
  Example: " a mathematical derivation of …… has been obtained and simulation is done in MATLAB" or "a web based application has been implemented using …..").
- Scope of the thesis: describe what will and will not be included in your study.
- A verbal "table of contents" of what lies ahead: introduce briefly the next chapters. For example, "The rest of the document is organized as follows: chapter 2 explains ……, chapter 3 deals with …….".

3. Background

The purpose of background is to explain the area of your study in detail and (in later part of it) convince the reader that you are familiar with incidents leading up to the study. It is also important to provide definitions for terminology that may not be familiar to your reader. In general, in the background, you should include the following points:

- Sufficient background of the area of study: describe where the problem originates in detail
- Definition of terminologies and explanation of concepts that may not be familiar to the reader (for example for your junior students).
- Proper acknowledgement of the previous work on which you are building **(literature review)**: convince the reader that you are familiar with current studies by showing sufficient and up-to-date references which are closely related to your topic.
- Motivation: compare the related work or how others tried to solve similar problems (from literature review) with your work and show that your work is significant and fills a gap in the field. In standard researches, this part examines the contribution of a research work in the field. It may be hard for you to point out the newness and contribution of your thesis work. However, you have to explain the reason why you are doing your thesis on the selected topic anyway.

4. System Design and implementation

Show your methods and designs how you solved the problem. You may use mathematical models or algorithms to represent your solution. Depending on your work, this section may have different subsections. For example: requirement analysis, detailed design procedures, mathematical analyses/derivations, testing the system or prototype, etc. .

5. Results and discussions

Provide the results (for example in the form of graphs) and explain their implications. What do your results imply? If possible, discuss on your results by comparing with previous works (similar results), which is called “Result Validation”.

6. Conclusions

- Draw major themes of the thesis.
- Relate the result with the problem statement in the introduction section (Have you solved the problem?)
- What other implication have drawn from your thesis?

7. Future work and recommendations (optional)

May be because of lack of time or material, is there anything you recommend to be done in this area which you did not? What other recommendations do you have?

8. References

9. Appendices (optional)