

Thesis/Project Report Writing Guidelines

Thesis or the project report is expected to provide the reader with the important aspects of your work from the start (introduction) to the finish (conclusion).

The content of a Thesis or a Project should include the following components in the outline of the report.

- 1.0 INTRODUCTION
 - 1.1 Literature Review
 - 1.2 Objectives
- 2.0 METHODOLOGY
 - 2.1 Analytical Work
 - 2.2 Computer Simulation
 - 2.3 Experimental Work
- 3.0 RESULTS AND DISCUSSION
- 4.0 CONCLUSIONS/ RECOMMENDED FUTURE WORK
- REFERENCES
- APPENDICES

This outline can be used as a guide to writing. Students are expected to start the report following this outline format and to fill the appropriate sections as they make progress. The initial planning of a report should begin before the work is carried out. The initial planning would help in writing the draft of the report and eventually the final report.

Preparing the outline of the report may consist of several of headings, subheadings, and sub-subheadings which encompass the various sections of the report. A complete outline can be detailed to the point at which each line consists of a single thought or point to be made and will represent one paragraph in the report. Remember that the main headings and subheadings of the outline are usually placed in the report to guide the reader.

The actual writing of the report should be in the form of a rough draft incorporating technical and grammatical skills available to the writer. Do not worry about perfection at this level. This would come during the editing process of reading the rough draft. This consists of improving the rough draft by analyzing and checking the logical thoughts, paragraphs, and punctuations. The final written report would be the result of editing and editing of the rough draft

Students may ask their classmates or the staff of the Campus Writing Center to read their reports for improvement.

Organization of a Project Report

The organization of a Project Report should include:

- Cover Title Page
- Copyright Page
- Signature Page (Thesis ONLY - not needed for Projects)
- ABSTRACT
- ACKNOWLEDGEMENTS
- TABLE OF CONTENTS
- NOMENCLATURE (if applicable)
- LIST OF TABLES (if applicable)
- LIST OF FIGURES (if applicable)
- 1.0 INTRODUCTION (including subsections)
- 2.0 METHODOLOGY (including subsections)
- 3.0 RESULTS AND DISCUSSION (including subsections)
- 4.0 CONCLUSIONS
- REFERENCES
- APPENDICES

Following may provide the writer with helpful tips in preparing the report.

ABSTRACT

An Abstract is a concise and complete summary of the full report. Although it is first in the report, it is always written last. It provides a brief (one sentence) introduction to the subject, a statement of the problem, highlights of the results (quantitative, if possible), and the major conclusion (quantitative). It must stand alone without citing figures or tables or references. Most abstracts are short and rarely exceed 200 words.

INTRODUCTION

An introduction generally identifies the subject of the report, provides the necessary background information, including appropriate literature review, and provides the reader with a clear rationale for the work described. It states the hypothesis or concept tested. The introduction does not contain results and generally does not contain equations. The use of figures and tables should be limited in the Introduction. The introduction section should end by stating the specific goals and objectives of the study. In short, the introduction section should provide the reader with the current state of the topic, the previous research conducted and the need or motivation to carry out to explore this study and the anticipated objectives.

THE METHODOLOGY

Clearly describe the method and means used to carry out the work. The work may require an analytical approach including advanced mathematics and formulation. Or it may require computer simulation using commercially available software such as Finite Element Analysis (FEA) or Computational Fluid Dynamics (CFD) as examples. The work may further require experimental studies using specific tools and apparatus.

ANALYTICAL WORK

The analytical work section describes a proposed theory or a descriptive model, if available. It does not contain results nor should extreme mathematical details be provided. Sufficient detail (mathematical or otherwise) should be provided for the reader to clearly understand the physical assumptions associated with a theory or model.

COMPUTER SIMULATION

The computer simulation modeling should be based on physical modeling of the work to be carried out. All assumptions should be stated clearly. Appropriate commercially available software could be used by justifying its use in the study, preferably following a benchmark study.

EXPERIMENTAL WORK

The experimental work section is intended to describe how experimental results were obtained. Provide an overview of the approach, test facilities, validations, and range of measurements. As a rule of thumb, provide just sufficient detail to allow the experiment to be conducted by someone else wishing to carry out a similar study. Do not give instructions or commands to the reader; rather report what was done. A list of equipment is included in the report. It should be a table in body of the report, or it should be placed in an appendix. Uncertainty analysis information can be described either in this section or in the Results section, or both. In cases in which an analytical, computer simulation and experiment are described, these sections of the report should complement and support each other. The relationship of the analysis to the computer simulation and to the experiment should be clearly stated.

RESULTS AND DISCUSSION

Here you present and discuss your test results and tie them back to your original objectives or hypothesis. Data must be interpreted to be useful. This transforms raw data into useful results. When presenting your results, remember that even though you are usually writing to an experienced technical audience, what may be clear to you may not be clear to the reader. Assuming too much knowledge can be a big mistake, so explain your results even if it seems unnecessary. If you cannot figure them out, say so: "The mechanism is unclear and further examination of this phenomenon is required." Often the most important vehicles for the clear

presentation of results are figures and tables. All of the figures and tables should be numbered and have descriptive titles. Column heads in tables should accurately describe the data that appear in the text of the Results section. Since you have spent significant time in preparing the plots and tables, you are intimately familiar with their trends and implications, the reader needs your insight to understand the results as well as you.

Continued on next page.

CONCLUSIONS

The Conclusions section is where you should concisely restate your answer to the question, "What do I know now?" It must support or refute your hypothesis. It is not a place to offer new facts, nor should it contain another rendition of experimental results or rationale. In a short summary restate why the work was done and how it was done, and provide a conclusion to the work. An appropriate conclusion might be "The temperature measuring system calibrated in this study was found to indicate the correct temperature over the range 30-250°F with no more than a $\pm 1^\circ\text{F}$ uncertainty at 95% confidence". Conclusions should be clear and concise statements of the important findings of a particular study; most conclusions require some quantitative aspects to be useful.

REFERENCES

The references cited in the report must be in a formal list is available to the reader and described in sufficient detail for the reader to obtain the source with a reasonable effort. The references cited must follow specific format shown in appendix, Document F.

APPENDICES

Appendices are sections to place superfluous but possible useful information. They should stand on their own and should not provide information critical to the report that information should be in the main body of the report. Uncertain whether information should be in an Appendix? Ask yourself: If the reader did not read the Appendix, would the report be sufficient? The answer is, it should be!

WRITING TIPS

1. Accuracy is important, but so is consistency. Define all nonstandard terms the first time they are used and stick to those terms and definitions throughout all writing on that subject. Err on the side of clarity if you must err, so that if a particular construction is questionable, add the extra words that make it longer but guarantee its clarity.
2. Don't overdo significant figures. This is one of the surest ways of convincing the astute reader that you are an amateur. How many figures can you reproduce for a given measurement? Use that number.
3. Avoid the use of contractions and possessives and jargon. On occasion, jargon serves a useful function-one of neatly describing or labeling an otherwise troublesome concept or process. Still, use jargon only when your audience will understand it and a simple substitution doesn't exist.
4. Technical writing is often in the third person to focus attention on the subject matter at hand. The active voice is preferred where possible, but choose the style that suits your writing best. The important thing is to communicate effectively.