TRANSFER THESIS GUIDELINES

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For Internal Use Only

The document provides some guidelines on how you should prepare your transfer thesis. The thesis, together with your defense in your transfer viva, will be assessed by the examiners to judge the standard, both qualitatively and quantitatively, of your work, and to decide if you have the potential to get a PhD and hence the transfer. You must demonstrate that you have the ability to carry out original and independent research at a very high standard, and to present and explain your work effectively and accurately both verbally and by writing.

Although the technical content of a transfer thesis may vary from project to project, it should in general comprise of 5 main parts: *Introduction and Background*, *Literature Review, Main Body, Results and Discussion,* and *Achievements and Future Plan.* **You should limit your thesis to a maximum of 70 pages**, excluding the content list, abstract, nomenclature, references and appendices.

Abstract (max. 1 page)

It should be a summary of the transfer report: a concise description of the problem(s) addressed, your method of solving it/them, your results and conclusions.

Introduction and Background (2~3 pages)

This introduction describes the scope of your work. What is your thesis about? It is *not* just a description of the contents of each section. What is the topic and why is it important? Provide motivation! You should tell the examiners what you are trying to do (something new and different) and why, with reference to any previous work if necessary. Do not overestimate the examiner's familiarity with your topic. A brief section giving background information may be necessary, especially if your examiners do not have any experience with some of the material needed to follow your thesis; so you need to give it to them.

Literature Review (20 ~ 25 pages)

A literature review constitutes an important chapter of the transfer thesis. In fact with some updates, this will probably be used as the literature review for your final PhD thesis. The review surveys scholarly articles relevant to your area of research, providing a description, summary, and critical analysis/evaluation of each work. The purpose is to offer an overview of significant literature published on a topic and to convey to your examiners what knowledge and ideas have been established on a topic. The aim of a literature review is also to show your examiners that you have read, and

have a good grasp of, the main published work concerning a particular problem in your field.

It is not just a descriptive list of the material available; you need to critically analyze the literature you use, showing insight and an awareness of differing arguments, theories and approaches. A literature review does not have to be long; but it must be up-to-date and thorough, covering the most relevant and significant work, thus preventing unnecessary duplication of your research effort. You should use the literature to explain the rationale of your research, to show why your research needs to be carried out, how you came to choose certain methodologies or theories to work with, how your work adds to the existing body of literature. After reading this review, your examiners should clearly understand the motivation for and importance of your work, and how you define the objectives and the boundary of your work. A literature review usually has three parts: an introduction, a body and a conclusion.

Introduction

- Gives an initial idea of the topic of the literature review, such as the central theme or organizational strategy.
- The objectives of the literature review. What do you need to find out?

Body

- Division of works under review into structured and logical categories. (Do not always start a paragraph by the name of a researcher. Additionally, if you are citing a bunch of people who state the same thing, summarize the basics of their point and cite them in string.) Organize the review into sections that present theories, themes, trends, approaches and methodologies, ideas, applications, research outcome, etc. The selection and evaluation of each paper and the organization of the review must be guided by your own research objectives and the problem you are trying to solve.
- Explanation of how each work is similar to and how it varies from the others, compare and evaluate each of them (relevance and significance, assumptions used), and places each work in the context of its contribution to the understanding of the subject under review.
- Identify gaps in previous research and point the way forward for further research
- Show how your study relates to previous studies and place the novelty of your work in the context of existing literature
- Criticize aspects of methodology and evaluate promising research methods

Conclusion

- A conclusion summarizes major contributions of significant studies to the body of knowledge under review, maintaining the focus of your research objectives, pointing out major gaps, limitations, inconsistencies, etc. in research. Outline your objectives, reflecting the novelties and originalities of your research.

Main Body (20 ~ 25 pages)

The exact structure in the main body will vary among theses. In some theses, it is necessary to establish some theory, to describe the experimental techniques, then to report what was done on the problems, and then finally to present a model or a new theory based on the new work. The main body should be divided into structured sections, described by short headings; sections should be numbered. Possible headings/contents are:

- Research Methods
- Design and construction of your test facilities/apparatus, with well-labeled schematic diagrams (you need not describe every single details; just the key/unique features)
- Description of instrumentation
- Experimental techniques/approaches and procedures
- Measurement matrix and conditions
- Description theory and mathematical approach/derivation
- Formulation of the mathematical model
- Algorithm development
- Simulation/programming
- Solution scheme
- Problems/obstacles encountered
- Validation
- etc.

When describing your experiments, it should be written in such a way that it is possible for a competent researcher to reproduce exactly what you have done by following your description.

When reporting theoretical work, you will need to include sufficient material to allow your examiners to understand the arguments you used, but you should not reproduce two pages of algebra that could found in a standard text. You need to concentrate at

least as much on the physical arguments as on the mathematics/equations. What do the equations mean (their interpretations!)?

Results and discussion (10 ~ 15 pages)

The results and discussion are very often combined in theses. What results you have obtained; but you do not need to present all of them. Some samples results will do. Explain how you process the data and show sample calculation if necessary. Obviously your results need discussion. What are the trends, significance and implications of the results? What do they mean? How do they fit into the existing body of knowledge? Are they consistent with current theories? Comparing experimental results with theoretical predictions (discuss discrepancies!). Do they give new insights? Do they suggest new theories or mechanisms? How to they compare with previous studies? The examiners will carefully scrutinize your answers to theses questions as they directly reflect your ability to critically analyze your results (your potential to get a PhD!).

Make sure that you have described the conditions under which each set of results was obtained. What was held constant? What were the other relevant parameters? Make sure too that you have used appropriate statistical analyses. Where applicable, carry out analysis of uncertainties; show experimental errors on the graphs. The significance of any result is greatly reduced if no indication can be given of the accuracy. Do not quote any results to more significant figures than is justified by the accuracy.

Conclusions (2 ~ 4 pages)

You generally cover three aspects in the Conclusions:

1. Overall Progresses
2. Summary of Achievements
3. Future Plan/work

Overall Progresses are *short*, *concise* statements of what you have completed.

The Summary of achievement will also be carefully read by the examiners. Here you list the contributions of *new* knowledge/discoveries and main observations/findings you make from your work; they should be directly related to the research objectives. Concise numbered paragraphs are the best! Unsubstantiated conclusions are penalized heavily.

For the Future Plan, concise bullet points/paragraphs together with a time plan are usually best. You need to show how you plan to spend the rest of your PhD period to fulfill all your research objectives. What further tasks (experiments, modeling, simulations, etc.) need to be done and a preliminary plan as how to tackle the individual tasks. Identify all the resources needed.

References

All references given *must* be referred to in the main body of the thesis. Note the difference from a Bibliography, which may include works that are not directly referenced in the thesis. Organize the list of references either alphabetically by author surname. Ensure that ALL entries are complete including: authors, title, journal or conference, volume and number of journals, date of publication and page numbers. Be consistent in punctuation.

A web site may disappear, and it may have been updated or changed on a regular basis. So references to the web site are usually less satisfactory (don't overuse such citations!). If there is a date on the site itself (last updated on .....) you should include that, too. When the title of a book is cited the place of publication, the name of the publisher, and the number of the edition should be given. References to books should be to the latest editions.

References in the text are made by giving the author's name and date of publication, e.g. (Brown 1965). Such reference is usually placed in parentheses unless the name of the author is part of the sentence, in which case the year only is required in parentheses. Where two or more papers published in any year by the same author are cited, each paper should be distinguished by a small letter, a, b, etc., placed after the date, e.g. (Brown 1965a). Where there are more than two authors to a paper it should be cited thus: (Brown et al. 1978). All the authors should, however, be included in the list of References.

Appendices

Appendices contain material that impedes the flow of your presentation, but is important to justify the results of the thesis. Examples include program listings, immense tables of data, lengthy established mathematical derivations, pictures or diagrams of results that are not important enough to keep in the main text, etc.

And remember at all times to avoid plagiarizing your sources. Always separate your source opinions from your own, making sure you consistently reference the literature you are referring to.

The same paper size and quality, pagination, margins, and illustration requirements apply to the appendices. They support the research in your thesis and should be as readable and reproducible as the rest of your work.

General tips

- There must be clear evidence that the reported work is the student's own and any evidence of plagiarism is totally unacceptable.
- Short, simple phrases and words are often better than long ones. If a thesis is long, the author should question whether it is repetitive or includes material that is better described in the references/appendices.
- Clear English and good grammar are essential.
- Make sure tables and figures are relevant and must be numbered, captioned and ordered in the sequence that they are referenced to in the text. Make sure that all figure axes and tables have units (preferably SI units), and adequate legends be provided.
- All symbols and abbreviations used in the text, equations, figures and tables should be defined, and given the appropriate units, if any, in the section on Nomenclature. Each axis of a graph must be labeled with a quantity and the unit of measurement of that quantity.
- All equations must be numbered.
- ***Before you submit your transfer thesis to your supervisors/examiners, run a spell check. If you have any characteristic grammatical failings, check for them. The examiners should not waste time correcting your grammar, spelling, poor construction or presentation.***
- The report should be clearly typewritten, with one and a half spacing throughout, on one side of the paper only. The sheets should be serially numbered. For the main body of the text, font size should be 12-point.
- If in doubt, always seek advice from project supervisors.