Thesis Format and Requirements

Overview:

Your final thesis document should demonstrate a high standard of technical writing, with precise and clear descriptions and well backed claims. The language, the illustrations, and the style should reflect the professional standard appropriate to that of a graduate engineer, and directed to a range of technical readers. Assuming a reader of a level of knowledge equivalent to that of a graduate student in your Option (but not necessarily a specialist in the specific topic you're addressing) is a reasonable choice for your audience, but others are possible.

The exact requirements for your final thesis document will likely depend on the unique nature of your work and your supervisor. This overview provides a generic model for content that will apply to most students, with a few adjustments. However, if your work is design focused or significantly non-typical, you may have to make significant adjustments to the model provided here and should do so, with advice from your communication consultant and supervisor. In general, the thesis should contain the following components:

1. An **Abstract** that concisely summarizes the main points of your thesis work. The abstract should first frame your thesis work by identifying your research gap and approach, but should focus on the results and significance of your research or design work.
2. An **Introduction** that concisely presents the context for the work that you are doing in your thesis, clearly identifies the research question/gap that your work is addressing, and identifies the central objectives. The framework for this component of the thesis has already been articulated twice; first, in your thesis proposal and second, in your interim report (IR). If the scope and nature of your work has not changed substantially, your introduction should be a revised version of your IR introduction, expanding on and clarifying components from that document where necessary. If your work has changed significantly, your introduction should reflect those changes, and describe context, gap, and goals related to your revised thesis project.
3. The **Literature Review** (or **Background**) will explain any concept or theory that is important to your thesis (including prior, and current approaches to your problem) and summarize relevant research in the field to identify a gap in current knowledge. In essence, the literature review can be considered a more detailed, elaborated and well-supported version of the introduction. In the literature review, the gap is developed in significantly greater detail and supported by references to research. If your thesis work revolves around a design project, the literature review may help you to develop a deeper understanding of the design problem, and define and justify your requirements. As with item (1), the framework for this part of the final thesis document should already be in your thesis IR, and this section can be a revised and expanded version of the IR literature review.
4. A **Methods** section that explains and justifies your experimental or design approach, your specific experimental methods or designs in a precise and detailed way that would allow someone else to capably reproduce them.
5. A **Results and Discussion** section that presents your results, highlights key results, and interprets your results in the context of the research question established at the outset of the document. In a design based thesis, this section would provide an evaluation of the design based on established requirements.
6. A brief **Conclusion** that summarizes the significance of your thesis work as a whole, and perhaps points to possible future research based on the groundwork laid in this thesis.

Important: Your document should not have these generic headings (except 1 & 2 perhaps), and should instead employ informative headings and sub-headings wherever possible. Especially with sections 4 and 5,

you will likely need to develop your own organizational strategy. While following the IMRAD structure of most experimentally oriented research work is important, your own work may call for a different organizational strategy. For example, depending on the nature of your thesis, you may have methods that were generated by prior results; in that case, you would be best off structuring around specific experiments, rather than by providing your methods all in one section. Structure of the thesis should be determined by adjusting these generic norms to the specific nature of your thesis work, and should be unique to your document.

Formatting Requirements:

Please use the Thesis Component Checklist, on the following page, to ensure that you have included all of the relevant materials, formatted appropriately.

Due Date and Submission:

The final thesis document is due on the last day of classes (Dec. 4, 2019 for Fall, or April 9, 2020 in Winter term) by 3PM. **One hard copy** must be submitted directly to the Division of Engineering Science; a **soft copy** must be submitted on the Quercus thesis site (q.utoronto.ca). Please supply a copy to your supervisor in their preferred format (hard or soft copy). Deductions will apply as follows:

- Students who submit their thesis on the last day of classes, but after 3PM: **2% deduction**
- Students who submit their thesis after Dec. 4, 2019 or April 9, 2020: **Additional 3% deduction per day**

Please, plan your research and writing accordingly; exemptions will **only** be granted for medical or personal reasons, with appropriate documentation.

Additional Resources:

Appointments about thesis writing with communication consultants assigned to the course can be requested by email. Please contact Prof. Chong at alan.chong@utoronto.ca, or book an appointment through the online system at: https://ecp.engineering.utoronto.ca/ecp-tutoring-centre/book-appointments/

Thesis Component Checklist:

☐	1. Front Cover	On paper and specified color supplied by the Division. Type the Thesis Title, your name, the name of your supervisor and the month and year on this document (centered on the page horizontally, close to top of page) See Sample title page at the end of this document.
☐	2. Blank Flyleaf	
☐	3. Title Page	On same paper as body of Thesis, with same information as on the Front Cover.
☐	4. Abstract	Up to 250 words, single-spaced in block form in centre of separate page. Paginate items 4-7 using roman numerals (i, ii, iii, iv) in the centre bottom of each page.
☐	5. Acknowledgements	Acknowledge persons and/or supporting agencies in a single-spaced paragraph in block form in centre of separate page.
☐	6. Table of Contents	Begin on separate page, showing page numbers for each item, using the following conventions: Chapters numbered: 1, 2, 3, etc. Sections numbered: 1.1, 1.2, etc., 2.1, 2.2, etc. Appendices numbered: A, B, C, etc.
☐	7. List of Symbols, Figures, and Tables.	Include if relevant, and begin each respective list on a separate page. Figures, tables, equations, etc. should be numbered in a consistent manner.
☐	9. Body of Thesis	Exact length requirements should be negotiated with your supervisor and may vary depending on your thesis work. On average, EngSci theses (including Appendices) run between 70-75 pages, with some projects requiring as many as 100-125 pages. Please use 12pt Times New Roman, or comparable font, using standard page layout (left justified), 1.5x spaced (except for large block quotations, footnotes, etc. which are usually more distinctive if single-spaced). It should be printed on one side only on 8.5"x11" white paper, with margins between 1" and 1.5" on the binding (left) edge, and between 0.5" and 1" on the other edges. A consistent numbering system should be used throughout, for ease in locating pages, figures and tables.
☐	10. References	Citations, in the body of the thesis, and references, at the end of the thesis body must be provided, properly formatted to a standard appropriate for your discipline (such as IEEE or CSE).
☐	11. Appendices	Begin each appendix on a separate page, and number appendices A, B, C, etc.
☐	12. Blank Flyleaf	
☐	13. Back Cover	Color specified by and paper provided by the Division. Should be left blank.

This is the BLUE cover you pick up from the Division office.

The Effect of Distribution of the Diffuse Radiation Component Upon the Collection Efficiency of a Flat Plate Solar Collectors

by

S.R. Wray

Supervisor: Yu-Ling Cheng
April 2020

Everything below "April 2020" is already printed on the cover pages you will receive from the Division.