

# THESIS WRITING MANUAL

## PART 1: GRADUATE SCHOOL REGULATIONS CONCERNING THESIS PREPARATION

- A. [Thesis Preparation](#)
- B. [Thesis Submission](#)
  - o [Master's Degree](#)
  - o [Doctoral Degree](#)

## PART 2: MECHANICS OF THESIS PREPARATION

- A. [Mechanical Specifications](#)
- B. [The Parts and Organization of the Thesis](#)
- C. [Sample Pages](#)
- D. [Other Resources Available](#)

### **Thesis and Project Check List**

- [Master's Candidates](#)
- [Doctoral Candidates](#)

## **PART 1: GRADUATE SCHOOL REGULATIONS CONCERNING THESIS PREPARATION**

Every candidate for an advanced degree, except in the non-thesis option for the master's degree, is required to submit a thesis or project. (The terms thesis, project, and dissertation are used in this manual synonymously.)

This manual explains the regulations associated with a satisfactory thesis submission. It is the degree candidate's responsibility to submit a thesis that meets the regulations established by the Graduate School. The regulations are updated frequently and a revised manual is on-line every year. The candidate should be sure to use a current manual. Product names mentioned in this manual are used for illustration purposes only and are not intended as endorsements or requisites. Specific time limitations and due dates for accomplishing each task may be found in the academic calendar posted in the Rensselaer catalog and in RPInfo.

### **A. Thesis Preparation**

The subject of the thesis is selected in consultation with the department member designated as the candidate's thesis adviser or thesis research professor.

Theses will only be accepted by the Graduate School when written in accordance with standardized usage as exemplified by the literature of the candidate's major field of study and the rules stated in the Graduate School Thesis Manual. Correct grammar, punctuation, spelling, and format are to be used in all theses. If a standard style guide is not available for a given field, a general style guide should be consulted.

The candidate is advised to consult with the Office of the Graduate School concerning any questions that arise during the preparation of the thesis. Students are encouraged to drop by the Graduate School Office and ask for help. The staff will be happy to ascertain whether a given item will be acceptable. Helpful hints as to how a given task can be accomplished can sometimes be given or directions as to where one can go to get help. Such consultation should minimize problems associated with the thesis submission.

## **B. Thesis Submission**

Graduate School certification of the thesis deposit is required before an advanced degree will be awarded.

NOTE: A copy of a thesis with pages punched for ring binders will **not** be accepted for binding.

### **Master's Degree**

At least two weeks before the end of the term in which it is expected that the degree will be awarded, the master's candidate submits individual copies of the thesis in final form to the adviser or advisory committee. The Rensselaer catalog and RPInfo gives the specific dates for submission deadlines. After a master's thesis has been approved, the original or a high-quality copy of the thesis with the original signature of the adviser on the title page shall be deposited at the Office of the Graduate School. In addition, a form entitled *Record of Thesis/Project Examination* must be completed and submitted with the thesis. The copy of the thesis, unpunched, is to be submitted in a large manila envelope with a copy of the title page taped to the front of to the envelope. The student should inquire as to whether the department requires a file copy. If the student needs additional copies bound, the student must make his/her own arrangements for the binding.

At the time of submission, the candidate for the master's degree should pay the appropriate fee to the Cashier in the Registrar's Office for binding the Graduate School's copy of the thesis.

Candidates in Architecture are required to deposit their original drawings or photo-reproductions of them with their theses. The term "photo-reproduction" excludes the blueprint process, which is not acceptable.

### **Doctoral Degree**

At least one month before the end of the term in which it is expected that the degree will be awarded, the doctoral candidate submits a copy of the thesis in final form and an abstract to the thesis adviser. Individual copies of the thesis and abstract are to be furnished to each member of the candidate's doctoral committee at least one week before the final thesis examination. The Rensselaer catalog and RPInfo gives the specific dates for submission deadlines.

After passing the final examination, the doctoral candidate then deposits at the Office of the Graduate School two copies of the thesis in final form, a title page for the abstract, and an additional copy of the abstract (no longer than 350 words or 2,450 characters), suitable for publication in University Microfilms' Dissertation Abstracts. These are to be submitted unpunched, in two large manila envelopes with a copy of the title page taped to the front of to the envelope. The thesis and abstract are to be accompanied by the form entitled *Record of Thesis/Project Examination*, signifying the doctoral committee's approval of content, format, and total thesis credit hours, signed by the chair of the doctoral committee. The student should inquire as to whether the department requires a file copy. If the student needs additional copies bound, the student must make his/her own arrangements for the binding.

All candidates for the doctorate, prior to the preparation of final copy of thesis, shall secure from the Office of the Graduate School a copy of the *Microfilm Agreement* which covers the microfilm publication of the thesis in order that the candidate may comply with the terms of the agreement. The candidate may elect to have the thesis copyrighted and should follow the instructions provided in the *Microfilm Agreement*.

The doctoral candidate is required to pay to the Cashier in the Registrar's Office a fee for binding the Graduate School's two copies of the thesis, for the microfilming and storage of a microfilm negative of the thesis by University Microfilms, and for publication of the abstract in Dissertation Abstracts. The receipt for the binding fee must be presented when the candidate deposits copies of the thesis in the Office of the Graduate School.

Publication of a doctoral thesis on microfilm does not interfere in any way with its publication in whole or in part as a book or in a journal. Indeed, the candidate is urged to seek conventional publication of his/her main findings in a recognized technical or scientific journal. The research professor should be consulted for assistance in exploring the potential for such publication. The Rensselaer Library maintains a file of style guides sponsored by professional societies and of instructions for authors issued by some of the more important journals. Some give much valuable information, and can save a great deal of time. Ask at the Reference Desk for more information.

## **PART 2: MECHANICS OF THESIS PREPARATION**

This section furnishes guidance to the writer in planning the appearance of the thesis in final form. It is helpful to study the sample pages included in this manual to find examples applicable to specific problems of form and style as they present themselves.

An effort has been made to prepare sample pages that illustrate the solution of the more perplexing problems encountered in preparing similar pages of the actual thesis. The personnel in the Office of the Graduate School are available to answer any specific questions that may arise during the preparation of the thesis.

It is up to the student to make sure that the thesis satisfies the regulations of the Graduate School. There are no doubt many computer programs that are capable of producing the required format; some of the programs that have been used successfully include Word, FrameMaker, and LaTeX. LaTeX is particularly well-suited to formatting a thesis (a long and complex document with tables of contents, cross references, tables, figures) for any discipline. It is also unequaled for producing high-quality mathematical expressions. Academic Computing Services (in the Voorhees Computing Center) provides a [LaTeX format](#) that conforms to the requirements of the Graduate School and simplifies adherence to the format.

It is not necessary to submit the original copy of the manuscript for binding; a photocopy is acceptable provided it is equivalent in quality to an original. That is, 1) the paper used must be of good quality; 2) it must be devoid of lines resulting from the cutting and pasting of originals; and 3) there must be no markings or specks resulting from improperly cleaned drums on photocopying equipment.

## **A. Mechanical Specifications**

**1. Paper** - The submitted copy (copies) of the thesis must be on standard 8 1/2 by 11 inch, acid-free archival bond paper with a 25% rag content. The entire thesis must be done using the same paper. The submitted copy is to be free of materials used to correct mistakes such as correcting fluid.

The student may be required to supply additional copies of the thesis beyond the original for the thesis adviser, committee members, and department chair.

**2. Printing** - Theses are to be printed using black ink. The device chosen to produce the final copy should provide a clean, non-smudged copy with consistent contrast throughout the document (i.e., laser printer). The Graduate School's copies of the thesis must be single-sided.

**3. Graphs, Charts, Tables, etc.** - Graphs, charts, tables, diagrams, and all "non-verbals" should be drawn especially for the thesis. Tables must be printed. Equations and labels used in charts and graphs should be typed. Handwritten productions of these in a thesis must be avoided. Scientific printing can be obtained from most word-processing programs. Proper pen types should be used when producing figures by graphic plotters to ensure that the completed product has adequate clarity and contrast to be easily read. Use of colored pens is discouraged as most color processes are not permanent. Also, distribution of theses is usually through photocopying methods or microfiche in which colors only appear as shades of gray. It is preferable to use dotted or dashed lines to distinguish differences or to identify lines by use of labels. Printer plots should only be

used if consistent density and clarity can be achieved in the plot and captions.

**4. Type Style and Spacing** - The text should be spaced no closer than four lines per inch. The same type font must be used throughout the text and main body of the submitted manuscript. This print should be no smaller than 10 point. A differing font may be used for titles of figures, formulae, or to meet a specific need of the thesis, e.g., use of italics for quotes

**5. Margins** - The margins of a thesis page are:

- Top = 1"
- Bottom = 1"
- Outside = 1"
- Inside or Binding Edge = NO LESS THAN 1 1/2"

These spacing and heading systems are required in order that proper binding can take place. Other margins will not be accepted.

Page numbers in the upper right hand corner should be in line with the right hand margin with a minimum clearance of 1/2" from the top of the page. Page numbers appearing at the bottom of the page should be centered, again with a minimum 1/2" clearance between the number and the bottom of the page.

**6. Pagination** - All pages except the title page must be numbered. Begin the numbering with small Roman ii, the title page counting as i, but remaining unnumbered. Use the Arabic number one (1) to start the Introduction or Chapter I of the body or main text of the thesis, and continue with every page that follows, whether it be text, figure, table, map, appendix, etc., numbering pages consecutively to the end.

The number of each text page is placed in the same position on all pages at the upper right in line with the right hand margin and at least 1/2 inch down from the top of the paper so as to allow two trims at the bindery. However, pages which are the beginning of a major section should have the page number at the bottom center. Another acceptable method for positioning the pages numbers is placing all the numbers bottom center with the page number at least 1/2 inch from the bottom of the paper.

**7. Footnotes** - This manual suggests that whether or not footnotes are used, all cited sources shall be collected in an appropriate "References Cited" section(s) at the end of the thesis, or when the thesis contains long chapters, at the end of each chapter.

Again, the candidate and the thesis adviser shall decide on the format to be followed, with the assumption that the generally accepted practice in the appropriate professional discipline shall be followed.

**8. Mounting Photographs** - Use only dry-mounting tissue or non-aqueous resin cement (not rubber cement) to affix photographs or other illustrative materials to the same bond

paper used throughout the body of the thesis. Do not use an adhesive with an aqueous solvent. Proper materials can be purchased at a photographic supply store. Mounting difficulties may be avoided by having photographs printed on bond paper with the margins specified for all pages of the thesis.

Photocopies of photographs can be used when the detail of the original is also represented in the photocopy. Needless to say, if the original is of poor quality, then a new original should be obtained.

**9. Computer Program Listings** - It is often necessary to include computer program listings or other computer output in the appendices of theses or projects. Reduced photocopy reproductions of this material are permissible provided certain standards are met including:

- a) required margins are met on photocopies
- b) use of acid-free archival bond paper (8 1/2 x 11)

Clear print is a necessity to produce clear photocopies.

**10. Folding Large Plates** - Plates are numbered as Figures: Figure 1, Figure 2, etc.

Large plates or figures should be reduced whenever possible to fit on the standard size page. When this is not possible, plates larger than 8 1/2" by 11" should be folded to leave a binding margin of at least 2" on the left margin of the plate. The folded outer edges of a plate should fall 1/2" within all open edges of the thesis; i.e., the final specimen should be approximately 8" x 10" including the 2" binding edge.

Care should be exercised in folding so that the plate may be readily unfolded after the thesis is bound, and so that it will not be cut into pieces when the thesis is being trimmed by the binder. Do not hesitate to consult with the Graduate School staff members if you have questions on how to do this.

Large plates, like text, should be produced on acid-free paper to insure permanence.

**11. Use of Copyrighted Material** - When copyrighted material (beyond brief excerpts) is included in the thesis, the author should obtain written permission authorizing use of the material from the copyright holder. Ownership of the copyright can be determined by inspecting the copyright notice which by law must be on the backside of the title page. Proper acknowledgment should be made in the thesis of any work done by others.

## **B. The Parts and Organization of the Thesis**

Since most theses follow the same format and have a number of parts in common, these parts are listed here for the student's convenience. Certain parts are required for all Rensselaer theses; other parts will be included or excluded at the discretion of the student and the thesis adviser.

## Parts of the Thesis

Title Page	<b>Required</b>
Copyright Notice	<b>If Used</b>
Table of Contents	<b>Required</b>
List of Tables	<b>Required*</b>
List of Figures	<b>Required*</b>
Prefatory Material (Preface, Foreword, Acknowledgments, etc.)	
Abstract	<b>Required</b>
Introduction**	<b>Required</b>
Historical Review**	<b>Required</b>
Theory	
Method of Procedure	
Materials and Apparatus	
Results	
Discussion***	<b>Required</b>
Conclusions***	<b>Required</b>
Summary	
Literature Cited or References	<b>Required</b>
Appendix	
Index	

\* Required if tables or figures are present.

\*\* These parts may be combined as "Introduction and Historical Review," and may include the review of the literature and/or the current state of the art.

\*\*\* These two parts are frequently combined and titled "Discussion and Conclusions."

## C. SAMPLE PAGES

We are providing the forms on line in the Adobe .pdf format. You may receive the forms directly to your computer for print-out. If you don't already have it, you will need the [Adobe Acrobat Reader](#), available free from Adobe for PC Windows, Mac and Unix as a stand alone application or to be attached to Netscape or your preferred Web Browser.

[The sample pages](#) pages illustrate an acceptable thesis format.

Please note that other styles are acceptable. The candidate should consult a style guide and be consistent in employing the style chosen throughout the thesis.

### 1. Abstract Title Page

An abstract title page is required only for the abstract of the doctoral thesis.

It will be noted that this title page has the same form as the title page for the entire thesis (see Item 1, this section of the manual) with the following statements added:

a) "An Abstract of ..."

b) "The original of the complete thesis is on file in the Rensselaer Polytechnic Institute Library." Note: Substitute "DOCTOR OF ENGINEERING" for "DOCTOR OF PHILOSOPHY" for the Doctor of Engineering degree.

**NOTE** That it is not necessary for the committee members to sign this page.

## 2. Copyright Notice

A student who desires the protection for his/her thesis that a copyright affords, must obtain a copyright and include a copyright notice as the second page of the thesis. The notice consists of three parts: the copyright symbol '©' and/or the word copyright, the name of the copyright owner, and the year of publication.

Doctoral students wishing to copyright their theses may make arrangements through University Microfilms to have a copyright filed on their behalf. This is accomplished by filling in the applicable part of the agreement filed with University Microfilms and by paying the required fee. The Graduate School maintains a supply of these forms and can quote the current charges for this service.

Any master's degree student desiring to copyright his/her thesis or project must make his/her own arrangements to file the correct papers with the U.S. Copyright Office.

The copyright notice, if included, is always page ii.

## 3. Table of Contents

The first page of CONTENTS is numbered ii (iii if a copyright notice is included), centered in the bottom margin, and subsequent pages are similarly numbered to end of CONTENTS.

All numbering and lettering and titles of parts and sections of the thesis in the Table of Contents must be identical with the same items in the body of the thesis itself.

## 4. List of Tables

For this list, continue lowercase Roman numeral page numbering consecutively from the last numbered page of CONTENTS.

All numbering, lettering, and captions in the LIST OF TABLES must be identical with



those in the individual tables throughout the thesis.

## 5. List of Figures

For this list, continue lowercase Roman numeral page numbering consecutively from the page preceding it.

The term Figure includes graphs, photographs, plates, and all other types of illustrations.

All numbering, lettering, and captions in the LIST OF FIGURES must be identical with those in the individual figures throughout the thesis.

## 6. Foreword, Preface, Acknowledgments

For page numbering, continue to use lowercase Roman numerals consecutively from the preceding page.

Although not a required part of the thesis, the author may wish to include a foreword or preface covering such matters as how the study happened to be undertaken, perhaps a brief description of the organization of the thesis, acknowledgment of assistance received, and similar "stage-setting" matters.

## 7. Abstract

The abstract is a succinct account of the thesis containing a statement of the problem, procedures or methods used, results, and conclusions. For page numbering, continue to use lowercase Roman numerals, numbering consecutively from the preceding page. For the master's thesis, there is no limitation on the length of the abstract. For the doctoral thesis, the abstract submitted to University Microfilms International for publication in Dissertations Abstracts International is limited to 350 words or a maximum of 2,450 characters.

If desired, a longer abstract may be used for the theses kept on file at Rensselaer. A separate abstract would then have to be written to meet the above specifications. The separate abstract that is submitted to University Microfilms should be consecutively numbered in Arabic numbers as opposed to the numbering used for the abstract contained in the body of the thesis. University Microfilms enters the abstracts into a computer database. Figures or diagrams involving graphics are therefore not acceptable for inclusion in the submitted abstract. For example, a chemical formula may be written out, but a diagram depicting chemical bonding is not acceptable. Abstracts not meeting the specified requirements will not be published and will be returned to the author. Reprints of the published doctoral abstract are available to the candidate from University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106. The Graduate School can give the current costs of reprints and other information about microfilm or paper copies of the whole thesis available from University Microfilms.

## 8. Introduction

This section is the beginning of the main body of the thesis.

Note that the INTRODUCTION begins the Arabic page numbering, 1, 2, 3, etc., through to the last page of the thesis, including the separate tables and figures inserted at the appropriate points in the text and any appendices at the end.

## 9. Literature Citation and Footnotes

References to relevant literature should follow the commonly accepted practice in the candidate's field. The form of citation should be approved by the adviser. Where the use of footnotes is accepted practice, these may appear at the bottom of a page, at the end of the thesis, or at the end of long chapters. Footnotes are indicated by superscript numbers inserted in the text at the appropriate point. Footnotes may include references to pertinent literature, or may simply consist of parenthetical elaboration. In any case, a section containing a list of all cited material and all references consulted but not cited must be included. If references are not cited by number, this list must be alphabetical by the first author's last name. If footnotes are not used, citations in the body of the text may be identified by a number corresponding to the number of the cited source in this list. Journal names may be abbreviated when this is common practice in a particular field. The form of entry found in the accompanying sample is an example of acceptable format. The library should be consulted for manuals published for the guidance of authors in specific fields. Students are strongly urged to consult manuals located in the library to find an acceptable style and use it consistently.

## 10. Title Page

Although not numbered, the title page is page i in the preliminary pages of the thesis. Beginning with the first page of the Table of Contents, numbered ii, small Roman numerals are used for all prefatory pages.

Three examples follow to show acceptable layouts for a doctoral thesis, master's thesis, and master's project. Original signatures, not photocopies, are required on the master's thesis and at least one copy of the doctoral thesis. The signatures should be written in black ink using a medium point pen. The detail of the signatures is lost in photocopying when a fine point pen or colored ink is used.

Note: Substitute "DOCTOR OF ENGINEERING" for "DOCTOR OF PHILOSOPHY" for the Doctor of Engineering degree.

If the thesis is submitted at an irregular time, write the actual month and year of completion at the bottom of the title page and under it in parentheses the exact month and year in which the degree is to be conferred (For graduation May 1996).

## **D. OTHER RESOURCES AVAILABLE**

### **Thesis Binding**

The binding fee paid to the Bursar's office covers the cost of having your thesis bound for permanent archiving at the Folsom Library. The Graduate School makes the arrangements for binding your thesis. These copies are not returned to you. However, as a courtesy to the Rensselaer community, the Rensselaer Union Bookstore will arrange to bind personal copies of your thesis at contracted rates. If you are interested, please contact the Bookstore directly.

### **Writing Center**

The Writing Center, located in Room # 4508 of Sage Laboratory, offers tutorial assistance to all Rensselaer students. Appointments are not necessary. All students writing theses or projects are encouraged to come with a sample of their writing. Effectiveness of the communication will be discussed on a one-to-one basis with a faculty member or a trained graduate student.

The Writing Center provides an instructional, not an editorial, service. That is, the Writing Center Staff teaches students to write and edit their own work; the staff does not write and edit for them. If a student needs extra help with written English, they should bring small sections of early drafts to the Writing Center. The staff will do their best to assist them in improving their work. The Writing Center staff may also refer students to professional editors who will line-edit their work for a fee or to courses in writing that a student may take on the Rensselaer campus.

The Writing Center is open five days a week during the Fall and Spring semesters. The hours are Monday-Thursday, 9:00 a.m. to 5:00 p.m. and 7:00 to 9:00 p.m. and Friday, 9:00 a.m. to 1:00 p.m. During Summer sessions, the Writing Center is usually open for limited hours Monday - Thursday. For more information, students can call the Writing Center at Extension 8983 or visit their web site: [Writing Center](#)