Information for Preparation of Research Proposals, Masters Dissertations and PhD Theses

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1 GENERAL

1.1 DISSERTATIONS
Candidates for Masters degrees are referred to General Regulations G.30-G.44, G.57-G.61 as explained in Part I of the Yearbook of the University of Pretoria, dealing with the regulations regarding Masters dissertations. The guidelines for examiners of dissertations and theses recommended during a meeting of the Deans (document DG 10/86), state the following with respect to Masters dissertations:

"A Masters dissertation should produce evidence of the student’s ability to undertake scientific research and report about it. The part of the Masters course leading to the dissertation intends to train the student in the research methodology. Although the research undertaken by the candidate may be original in nature and may result in publication in a journal, this requirement is not necessarily the decisive factor. A dissertation is acceptable if it clearly shows that the candidate:

(a) is familiar with the nature and aim of his investigation;
(b) has a satisfactory knowledge and interpretation of the relevant literature;
(c) has mastered the techniques relevant to his research;
(d) is well-grounded in the theory and application of scientific methodology;
(e) is able to evaluate the scientific meaning of his findings;
(f) can structure the research report in a scientific manner."

1.2 THESES
Candidates for the PhD degree are referred to General Regulations G.57-G.61 as explained in Part I of the Yearbook of the University of Pretoria which deal with the regulations regarding PhD theses. The guidelines for examiners of dissertations and theses, recommended during a meeting of the Deans on 23 July 1996 (document DG 10/86), give the following guidelines with respect to the assessment of PhD degrees:

"The purpose of the doctoral study is to train the candidate to undertake original research. The thesis makes an original contribution to the knowledge and insight in the particular discipline. The research undertaken by the candidate must be suitable for publication in a journal. The thesis must clearly show that the candidate:

(a) is familiar with the nature and aim of his investigation;
(b) has a satisfactory knowledge and interpretation of the relevant literature;
(c) has mastered the techniques relevant to his research;
(d) is well-grounded in the theory and application of scientific methodology;
(e) is able to evaluate the scientific meaning of his findings;
(f) can structure the research report in a scientific manner."
2 RESEARCH PROPOSALS

2.1 M.Eng

2.1.1 Students who did not complete EIN732 Introduction to Research within a year from submission of the research proposal

Prospective students must submit a document, drawn up by the student (in conjunction with the supervisor), in which the proposed research project is explained. Aspects, such as the nature of the problem, possible solutions, findings of a literature study, etc., must be addressed in the document (see 2.3 regarding templates). This document may not be longer than two A4 pages, and must be handed in at the postgraduate secretary (Mrs. Heleen Gous) within four months of the date of first registration. All research proposals will be critically evaluated by the Postgraduate Committee, and feedback given to the student/supervisor. Re-registration for the second year of study may be denied if the Postgraduate Committee is not in possession of an approved research proposal at that time.

A plagiarism declaration by the student must be submitted with the research proposal. The postgraduate committee reserves the right to submit research proposals to the Turnitin plagiarism software to be evaluated for plagiarism according to the standards as stated in the UP plagiarism policy document.

2.1.2 Students who completed EIN732 Introduction to Research

Students who (i) passed EIN732 Introduction to Research within a year from submission of the research proposal, (ii) will conduct the research as described in the proposal prepared for EIN732, and (iii) will continue with the research under supervision of the study leader employed for EIN732, may submit the research proposal prepared for EIN732 instead of the two page proposal required of students who did not complete the module. In such a case, a summary page needs to be submitted in addition to the EIN732 research proposal. The proposal must be handed in at the postgraduate secretary (Mrs. Heleen Gous) within four months of the date of first registration. All research proposals will be critically evaluated by the Postgraduate Committee, and feedback given to the student/supervisor. Re-registration for the second year of study may be denied if the Postgraduate Committee is not in possession of an approved research proposal at that time.

A plagiarism declaration by the student must be submitted with the research proposal. The postgraduate committee reserves the right to submit research proposals to the Turnitin plagiarism software to be evaluated for plagiarism according to the standards as stated in the UP plagiarism policy document.

2.2 PhD

Prospective students must submit a document in which the proposed research project is clearly explained. Aspects, such as the nature of the problem, possible solutions, findings of a literature study, etc. must be addressed in the document. This document may not be longer than ten A4 pages, and must be handed in within 6 months after the date of first registration at the Postgraduate Secretary (Mrs. Heleen Gous). All research proposals will be critically evaluated by the Postgraduate Committee, and feedback given to the student/promoter. Re-registration for the second year of study may be denied if the Postgraduate Committee is not in possession of an approved research proposal at that time.

2.3 TEMPLATES

Templates for research proposals are available on the website. Proposals that do not adhere to the format will not be considered.
3 DISSECTATIONS AND THESES

3.1 TEMPLATES

Templates are available on the website.

3.2 LAYOUT OF THESIS OR DISSERTATION

- Title page. See 3.3 for the correct name of the degree that you are enrolled for.
- Summary in language of theses or dissertation with keywords.
- Summary in English, with keywords (compulsory).
- Summary in Afrikaans\(^1\), with keywords (optional)
- List of abbreviations - only where different as in acceptable technology
- Table of contents
- List of tables (optional)
- List of figures (optional)
- Chapters
- References
- Addendums

3.3 NAMES OF DEGREES

Kindly ensure that you use the correct name for the degree that you are enrolled for in your thesis or dissertation.

<table>
<thead>
<tr>
<th>MEng Degrees</th>
<th>Code</th>
<th>Full name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEng (Electrical Engineering)(12250031)</td>
<td>EIR 890</td>
<td>Master of Engineering (Electrical Engineering)</td>
</tr>
<tr>
<td>MEng (Electronic Engineering)(12250091)</td>
<td>EIN 890</td>
<td>Master of Engineering (Electronic Engineering)</td>
</tr>
<tr>
<td>MEng (Computer Engineering)(12250211)</td>
<td>ERI 890</td>
<td>Master of Engineering (Computer Engineering)</td>
</tr>
<tr>
<td>MEng (Bioengineering)(12250201)</td>
<td>EIB 890</td>
<td>Master of Engineering (Bioengineering)</td>
</tr>
<tr>
<td>MEng (Microelectronic Engineering)(12250191)</td>
<td>EEY 890</td>
<td>Master of Engineering (Microelectronic Engineering)</td>
</tr>
<tr>
<td>MEng (Software Engineering)(12250202)</td>
<td>EPR 890</td>
<td>Master of Engineering (Software Engineering)</td>
</tr>
<tr>
<td>MSc (Applied Sciences)(12253046)</td>
<td>EER 891</td>
<td>Master of Science (Applied Sciences)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PhD Degrees</th>
<th>Code</th>
<th>Full name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD (Electrical Engineering)(12263021)</td>
<td>EIR 990</td>
<td>Philosophiae Doctor (Electrical Engineering)</td>
</tr>
<tr>
<td>PhD (Electronic Engineering)(12263081)</td>
<td>EIN 990</td>
<td>Philosophiae Doctor (Electronic Engineering)</td>
</tr>
<tr>
<td>PhD (Computer Engineering)(12263102)</td>
<td>ERI 990</td>
<td>Philosophiae Doctor (Computer Engineering)</td>
</tr>
<tr>
<td>PhD (Electrical)(12263151)</td>
<td>EIR991</td>
<td>Philosophiae Doctor (Electrical)</td>
</tr>
<tr>
<td>PhD (Electronics)(12263161)</td>
<td>EIN 991</td>
<td>Philosophiae Doctor (Electronics)</td>
</tr>
<tr>
<td>PhD (Biosystems)(12263202)</td>
<td>EIC 990</td>
<td>Philosophiae Doctor (Biosystems)</td>
</tr>
</tbody>
</table>

Engels-Afrikaanse vertalings:

- Master of Engineering = Magister in Ingenieurswese
- Master of Science = Magister Scientiae
- Philosophiae Doctor = Philosophiae Doctor

\(^1\) Die leesteken as deel van [‘n] moenie met die MSWord-verstek-karakter [‘n] gespel word nie, maar met ‘n reguit karakter [‘n] of met die korrek-georiënteerde karakter [‘n].
3.4  FONTS, LINE AND PARAGRAPH SPACING

3.4.1  Spacing

- Left margin: 3 cm
- Right margin: 2.5 cm
- Top margin: 2 cm
- Bottom margin: 2 cm
- Line spacing: 1.5x font spacing
- Paragraph spacing: 3x font spacing

3.4.2  Font

- Times Roman (Aa Bb Cc Gg) font, black.
- Size of font for text: 12 point is recommended but not smaller than 11 point.
- Size of font for header and footer and foot notes: 11 point

3.5  HEADERS AND FOOTERS

3.5.1  Header

<table>
<thead>
<tr>
<th>CHAPTER 1</th>
<th>INTRODUCTION</th>
</tr>
</thead>
</table>

3.5.2  Footer

<table>
<thead>
<tr>
<th>Department of Electrical, Electronic and Computer Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Pretoria</td>
</tr>
</tbody>
</table>

Headers and footers begin on the second page of the first chapter and must appear on every page except on the first page of a chapter.

3.6  LITERATURE REFERENCES

The literature referencing style must (strictly) follow either the IEEE method or the Harvard method. Examples of these referencing styles are available on the website.

Please note that the two referencing methods may not be interchanged.

3.7  FIGURES AND GRAPHS

3.7.1  General

- The vertical dimension must normally not be smaller than 8 cm.
• The number of the figure (chapter_number.figure_number, e.g. Figure 3.1) and caption may not be smaller than 11 pt and must be centred underneath the figure/graphs.
• Frames around figures and graphs are undesired.
• Line widths used in figures and graphs must be clear.
• The size of the font used in figures and graphs must be at least 8 point and the same letter type (Times Roman, Helvetica or Arial) must consistently be used in all figures. This also applies to figures taken from references, i.e. if possible the figure should be regenerated with appropriate fonts, unless the nature of the figure is such that it cannot be regenerated.

3.7.2 Copyright clearance and referencing of material subject to copyright clearance
In general, if any material (not only figures, but also data sheets, etc) is copied from an external source, obtaining permission to do so is mandatory. This holds regardless of whether the material, e.g. figure, has been altered. If you copy the main/core idea of a figure, you will need to apply for permission, even though you may have redrawn the figure from scratch. Captions to figures, etc., should reflect that permission has been obtained.

Copying from non-IEEE sources:
• If the figure is an exact copy of a figure from a non-IEEE source, the final sentence of the figure caption must read (e.g.)
  Taken from Loizou (2006), with permission.
  If the figure is not an exact copy of the figure in the source, its caption must read
  Adapted from Loizou (2006), with permission.
  The above applies to the Harvard referencing style. For IEEE referencing style, the above would become
  Taken from [12], with permission.
  etc.

Copying from IEEE sources:
An exception involves the copying a portion (e.g., figure, graph, table) of an IEEE copyrighted paper for reproduction in a dissertation or thesis. In such cases it is not necessary to apply for copyright permission. However, the copied material should be properly referenced, in the case of figures/graphs and tables by also displaying the IEEE copyright line in the caption, e.g.,
  Taken from [12], © 2011 IEEE.
  or
  Adapted from [12], © 2011 IEEE.
In the case of short quotes from the text, the original source should be fully referenced followed by the IEEE copyright line. For more information, see
Please be aware that it could take up to two months to obtain copyright clearance for some materials.

3.8 TABLES
• Font size not smaller than 11 point.
• The number of the table (chapter_number.table_number, e.g. Table 3.1) and caption may not be smaller than 11 pt and must be centred above the table.

3.9 HEADINGS
• Chapter headings in large CAPITAL LETTERS and bold print (see template).
• Other headings: the same font size as the text.
• Main section headings in CAPITAL LETTERS and bold print, e.g.,
  1.1 INTRODUCTION
• Sub-section headings: bold, sentence case, i.e. capitalize only the first letter except in the case of abbreviations or names that occur in the heading, e.g.,
2.1.1 Background to game theory

- Numerical number system is used: chapter_number.section_number, e.g. 5.1
- All subheadings need to be numbered, but the table of contents needs only contain headings up to level 3 headings:
  - level 1: chapter title
  - level 2: main section headings, e.g. 1.1 INTRODUCTION
  - level 3: sub-section headings, e.g. 2.1.1 Background to game theory
- Refer to the numbering and heading format of this document as an example.
- Chapter headings should not consist of acronyms/abbreviations only.

3.10 LIST OF ABBREVIATIONS, FIGURES, TABLES AND SYMBOLS

- List of abbreviations where the notation is different than normal, forms part of the dissertation or thesis.
- Lists of figures, tables or symbols used are optional.

3.11 EQUATIONS

- Equations are numbered by chapter, e.g., Equation 4 in Chapter 1 is numbered (1.4).
- The numbers are placed in brackets against the right hand margin.
- Equations are centred in the text.
- If an equation is part of a sentence, then there must be a comma after the equations. If the sentence is ended with the equations, then the equation follows with a full stop.
- Equation numbers must use the same font face and size as the text.

3.12 ADDENDUMS

- Addendums are shown as "ADDENDUM A", etc.
- Equations in the addendum are numbered as (A.1), (A.2), etc.
- Addendums are bound at the end of the dissertation/thesis.

3.13 LENGTH OF DISSERTATIONS AND THERSES

- As a general guideline a Masters dissertation should not exceed 100 to 120 pages and a PhD thesis should not exceed 150 to 180 pages in total.
- If the length of the dissertation or thesis is judged by the postgraduate committee to be inappropriate, the candidate could be instructed to condense the document.

3.14 LANGUAGE EDITING

- Please note that the responsibility for language editing of the document is the student's. Although students are allowed to submit theses and dissertations that are not professionally edited, the postgraduate committee recommends professional language editing before theses and dissertations are sent out for external examination. Please note that language editing may be assessed in addition to the technical content of a thesis or dissertation when a final mark is determined by the exam panel.