GUIDELINES FOR THE PREPARATION OF Ph.D. THESIS

St. PETER'S UNIVERSITY

St. Peter's Institute of Higher Education and Research
(Declared under section 3 of UGC Act 1956)
Avadi, Chennai – 600 054.

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GUIDELINES FOR THE PREPARATION OF Ph.D.THESIS

1. GENERAL

The manual is intended to provide broad guidelines to the research scholars in the preparation of the Ph.D. Thesis. In general, a thesis shall report, in an organized and scholarly fashion, an account of original research work of the research scholar leading to the discovery of new facts or techniques or correlation of facts already known (analytical, experimental, hardware oriented, etc.). Thesis shall demonstrate a quality as to make a definite contribution to the advancement of knowledge and the research scholar's ability to undertake sustained research and present the findings in an appropriate manner with actual accomplishments of the work.

Instruction

The scholars are expected to read carefully the instructions given in the sequel and meticulously follow them in the preparation of thesis. Non-compliance with any of these instructions may lead to the rejection of the thesis submitted.

2. SIZE OF THESIS

The size of the thesis should be minimum 150 pages (in case of mathematics, minimum 100 pages) and maximum 300 pages of typed matter reckoned from the first page of Chapter 1 to the last page of the thesis excluding reference section, tables and figures. Under extraordinary circumstances, the size of the thesis shall be permitted up to 400 pages with the concurrence of the supervisor.

3. ARRANGEMENT OF THE CONTENTS OF THE THESIS

The sequence in which the thesis material should be arranged and bound as follows:

1. Cover Page and Title page (as shown in Annexure I)

2. Declaration Certificate by the candidate

3. Certificate given by the Supervisor (as shown in Annexure III)

4. Acknowledgement by the Candidate

5. Abstract

6. Table of Contents (as shown in Annexure IV)

7. List of Tables

8. List of Figures

9. List of Symbols and Abbreviations (as shown in Annexure V)

10. Chapters

11. Appendices

12. References

13. List of Publications

The Tables and Figures should be included at appropriate places in the text of the Thesis.

4. PAGE DIMENSIONS AND MARGIN

Standard A4 Size (297 mm x 210 mm) paper may be used for preparing the copies. The dimensions of the final bound thesis (5 copies) report should be 290 mm x 205 mm. Thesis should be bound with black calico cloth and using flexible cover of thick white art paper.

The final thesis (at the time of submission) should have the following page margins:

Top edge	:	30 to 35 mm
Bottom edge	:	25 to 30 mm
Left side	:	35 to 40 mm
Right side	:	20 to 25 mm

The Thesis should be prepared on good quality white paper preferably not lower than 80gsm. Tables and Figures should conform to the margin specifications. Large size Figures should be photographically or otherwise reduced to the appropriate size before insertion.

5. MANUSCRIPT PREPARATION

In the preparation of the manuscript, care should be taken to ensure that all textual

matter is typewritten to the extent possible in the same format as may be required for the final thesis. Hence some of the information required for the final typing of the thesis is also included in this section.

The headings of all items from 2 to 12 listed in section 3 should be typed in capital letters without punctuation and centered 50 mm below the top of the page. The text should commence 4 spaces below this heading. The page numbering for all items from 1 to 8 should be done using lower case Roman numerals and the pages thereafter should be numbered using Arabic numerals.

5.1 Cover Page & Title Page - A specimen copy of the Cover page and Title page for the Thesis is given in **Annexure I.**

5.2 Declaration: Declaration certificate, as given in the specimen in **Appendix II** is to be given by the candidates with the counter signature by the supervisor.

5.3 Certificate - The Certificate shall be typed in double line spacing using Font Style Times New Roman and Font Size 13 as per the format shown in **Annexure III.**

The certificate shall carry the Supervisor's signature and shall be followed by the **supervisor's name, academic designation (not any other responsibilities of administrative nature)**, department and full address of the institution where the supervisor has guided the research scholar. The term 'SUPERVISOR' must be typed in capital letters between the Supervisor's name and academic designation. Signature of the Joint Supervisor with the details specified as above should be included wherever it is applicable.

5.4 Acknowledgement – It should be brief and should not exceed one page when typed in double spacing. The scholar's signature shall be made at the bottom right end above his/her name typed in capitals.

5.5 Abstract - Abstract should be an essay type of narration not exceeding four pages outlining the research problem, methodology used for tackling it and a summary of the findings. This shall be typed in double line spacing using Font Style Times New Roman and Font Size 13.

5.6 **Table of Contents** - The table of contents should list all captions following it as well as any caption which precedes it. The title page, Bonafide Certificate and Acknowledgment will not find a place among the items listed in the Table of Contents but the page numbers of which are in lower case Roman letters. One and a half spacing should be adopted for typing the matter under this head. A specimen copy of the table contents for the thesis is given in **Annexure IV.**

5.7 **List of Table** - The list should use exactly the same captions as they appear above the tables in the text. One and a half spacing should be adopted for typing the matter under this head.

5.8 **List of Figures** - The list should use exactly the same captions as they appear below the figures in the text. One and a half spacing should be adopted for typing the matter under this head.

5.9 **List of Symbols and Abbreviations** - One and a half spacing should be adopted for typing the matter under this head. Standard symbols, abbreviations, etc. should be used. The list should be arranged alphabetically with respect to the contents on the right side as shown in **Annexure V.**

5.10 **Chapters** - The chapters may be broadly divided into 3 parts, (i) introductory chapter, (ii) chapters developing the main theme of the thesis and (iii) results, discussion and conclusion. The main text shall be divided into several chapters and each chapter may be further divided into several divisions and sub-divisions.

Each chapter should be given an appropriate title.

Tables and Figures in a chapter should be placed in the immediate vicinity of the reference where they are cited.

Footnotes should be used sparingly. They should be typed single space and placed directly underneath in the very same page which refers to the material they annotate.

5.11 **Appendices -** Appendices are provided to give supplementary information, which if included in the main text may serve as a distraction and cloud the central theme under discussion.

Appendices should be numbered using Arabic numerals, e.g. Appendix 1,

Appendix 2, etc.

Appendices, Tables and references appearing in appendices should be numbered and referred to at appropriate places just as in the case of chapters.

Appendices shall carry the title of the work reported and the same title shall be included in the Table of Contents page.

The list of publications (those already published/accepted for publication in Journals and papers presented in Conferences/Symposia) made by researchscholar during the period of research, shall be brought in the Appendix titled, as List of Publications and the same shall be reported in the Table of Contents.

5.12 List of References - Any works of other researchers, if used either directly or indirectly, the origin of the material thus referred to at appropriate places in the Thesis should be indicated. The author's publications during the period of research should not be included in the references and can be separately mentioned as in 5.10. A paper, a monograph or a book may be designated by the name of the first author followed by the year of publication, placed inside brackets at the appropriate places in the Thesis. The citation may assume any one of the following forms.

Examples of Citation

(i) An improved algorithm has been adopted in the literature (Rupf 2009)

(ii) Massey and Mittelholzer (2008) have dealt at length this principle

(iii) The problem of mechanical manupulators has been studied by Anigstein et al (2010) and certain limitations of the method used, has been pointed out by Anigstein et al (2010 a).

The listing should be typed 4 spaces below the heading "REFERENCES" in single spacing. The reference material should be listed in the alphabetical order of the first author. The name of the author/authors should be immediately followed by the other details and year. A typical illustrative list given below relates to the citation example quoted above.

REFERENCES

1. Alishahi, K., Marvasti, F., Aref, V. and Pad, P. "Bounds on the sum capacity of

synchronous binary CDMA channels", J. Am. Chem. Soc., Vol.55, No.8, year pp.3577- 3593, 2009.

2. Djionin, D. and Bhagrava, V. "New results on low complexity detectors for over-staturated CDMA systems" in Proc. Globecom, 2010.
3. Karystinos, G.N. and Pados, D.A. "The maximum squared correlation, total asymptotic efficiency, and sum capacity of minimum total squared correlation binary signature sets", Designs, Codes and Cryptography, Vol.51, pp.348-355, 2007.
4. Massey, J.L. and Mittelholzer, T. "Welch's bound and sequence sets for code-division multiple access systems", in Sequences ll, Methods in Communication, Security and Computer Sciences", Capocelli, R., De Santis, A. and Vaccano, U. Eds. Springer-Verlag, New York, 2007.
5. Verdu, S. Multiuser Detection, Cambridge University Press, New York, 2008.
6. Waldron, S. "Generalized Welch bound equality sequences are tight frames" IEEE Trans. Inf. Theory, Vol.49, No.9, pp.2307-2309, 2008.

5.13 Tables and Figures – "Table" means tabulated numerical data in the body of the thesis as well as in the appendices. All other non-verbal material used in the body of the thesis and appendices such as charts, graphs, maps, photographs and diagrams may be designated as Figures.

A Table or Figure including caption should be accommodated within the prescribed margin limits and appear on the page following the page where their first reference is made.

Tables and Figures on half page or less in length may appear on the same page along with the text. However, they should be separated from the text both above and below by triple spacing.

All Tables and Figures should be prepared on the same paper or material used for the preparation of the rest of the thesis.

Two or more small Tables or Figures may be grouped if necessary in a single page.

Wherever possible, the photograph(s) shall be reproduced on a full sheet of photographic paper or color xerox.

More than one photograph can be included in a page.

Samples of Fabric, Leather, etc., if absolutely necessary may be attached evenly

in a page and fixed/pasted suitably and should be treated as Figures.

6. TYPING INSTRUCTIONS

6.1 General

This section includes additional information for final typing of the Thesis. The impressions on the typed/Xeroxed/printed copies should be in black toner.

A sub-heading at the bottom of a page must have atleast two full lines below it or else it should be carried over to the next page.

The last word of any page should not be split using a hyphen. One and a half spacing should be used for typing the general text. The general text shall be typed in Font Style Times New Roman and Font Size 13. Single spacing should be used for typing:

(i) Long Tables
(ii) Long quotations
(iii) Foot notes
(iv) Multiline captions
(v) References

All quotations exceeding one line should be typed in an indented space - the indentation being 15 mm from either side of the margin.

6.2 Chapters

The format for typing Chapter headings, Division headings and Sub-division headings are explained by the following illustrative examples.

Chapter heading	:	**CHAPTER 1** **INTRODUCTION**
Division heading	:	**1.1 Outline of Thesis**
Sub-division heading	:	***1.1.1 Literature Review*** **1.1.1.1** *Synthetic aperture radars on satellites*

The word CHAPTER without punctuation should be centered 50 mm down from the top of the page. Two spaces below, the title of the chapter should be typed centrally in capital letters. The text should commence 4 spaces below this title, the first letter of the text starting 20 mm inside from the left hand margin.

The division and sub-division captions along with their numberings should be left justified. The typed material directly below division or sub-division heading should commence 2 spaces below it and should be offset 20 mm from the left hand margin. Within a division or sub-division paragraphs are permitted. Even paragraph should commence 3 spaces below the last line of the preceding paragraph, the first letter in the paragraph being offset from the left hand margin by 20 mm.

7. NUMBERING INSTRUCTIONS

7.1 Page Numbering

All page numbers (whether it be in Roman or Arabic numbers) should be typed without punctuation on the upper right hand corner 20 mm from the top with the last digit in line with the right hand margin. The preliminary pages of the thesis (such as Title page, Acknowledgement, Table of Contents, etc.) should be numbered in lower case Roman numerals. The title page will be numbered as (i) but this should not be typed. The page immediately following the title page shall be numbered as (ii) and it should appear at the top right hand corner as already specified. Pages of main text, starting with Chapter 1 should be consecutively numbered using Arabic numerals.

7.2 Numbering of Chapters, Divisions and Sub-Divisions

The numbering of chapters, divisions and sub-divisions should be done using Arabic numerals only and further decimal notation should be used for numbering the divisions and sub-divisions within a chapter. For example, sub-division 4 under division 3 belonging to chapter 2 should be numbered as 2.3.4. The caption for the sub-division should immediately follow the number assigned to it.

Every chapter beginning with the first chapter should be serially numbered using Arabic numerals. Appendices, included if any, should also be numbered in an identical manner starting with Appendix 1.

7.3 Numbering of Tables and Figures

Tables and Figures appearing anywhere in the thesis should bear appropriate numbers. The rule for assigning such numbers is illustrated by an example. Thus, if a Figure in Chapter 3, happens to be the fourth then assign 3.4 to that Figure. Identical rules apply for Tables except that the word Figure is replaced by the word Table. If Figures (or Tables) appear in appendices then Figure 3 in Appendix 2 will

be designated as Figure 2.3. If a table to be continued into the next page this may be done, but no line should be drawn underneath an unfinished Table. The top line of the Table continued into the next page should, for example read Table 2.1 (continued) placed centrally and underlined.

7.4 Numbering of Equations

Equations appearing in each Chapter or Appendix should be numbered serially, the numbering should commence afresh for each Chapter or Appendix. Thus for example, an equation appearing in chapter 4, if it happens to be the eighth equation in that chapter should be numbered as (4.8) thus:

$$\left[\frac{p^2}{x\,h}\right]\left[\frac{pq}{y\,h}\right] \quad gh\frac{}{x} \quad k\frac{\overline{p^2 \quad q^2}}{h^2}\,p \quad \frac{1}{x}\left[h_{xx\,w}\right] \quad \left[\frac{}{y}\,h_{xy}\right] \qquad (4.8)$$

While referring to this equation in the body of the Thesis it should be referred to as Equation (4.8).

ANNEXURE I

A typical Specimen of Cover Page and Title Page

<Font Style Times New Roman>

("Title of the Thesis")

<Font Size 18> <1.5 line spacing>

THESIS

<Font Size 14>

Submitted

<Font Size 14> <Italic>

in partial fulfillment of the requirements for the award of the degree of

<Font Size 14> <Italic> <1.5 line spacing>

DOCTOR OF PHILOSOPHY

IN THE DEPARTMENT OF ----------

By

.....

(Name of the Candidate)

<Font Size 16>

DEPARTMENT OF ----------

St. PETER'S INSTITUTE OF HIGHER EDUCATION AND RESEARCH

St. PETER'S UNIVERSITY

CHENNAI - 600 054

<Font Size 15><1.5 line spacing>

(Month Year)

ANNEXURE II

A typical Specimen of Declaration Certificate

<Font Style Times New Roman>

DECLARATION

<Font Style Times New Roman 14>

Certified that the thesis entitled **"……(Title of Thesis)"** is the bonafide record of independent work done by me under the supervision of……(Name of the Supervisor, Designation, Department, college/University, place and pin code). Certified further that the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred earlier.

(Counter signed by the Supervisor) Signature of the candidate

Name of the Supervisor **(Name of the Candidate)**

Place:

Date:

ANNEXURE III

(A typical Specimen of Certificate given by the Supervisor)

<Font Style Times New Roman>

CERTIFICATE

<Font Size 14>

<Font Size 12>

I hereby certify that the thesis entitled, **"……(Title of Thesis)"** submitted to the St. Peter's University, for the award of Degree of Doctor of Philosophy is the record of research work done by the candidate …….(Name of the Candidate) under my guidance and that the thesis has not formed previously the basis for the award of any degree, diploma, associateship, fellowship or other similar titles.

……..(Signature of the Supervisor)

Place: (Name of the Supervisor)

Date : SUPERVISOR

(Academic designation, Department,

college/University, place and pin code)

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A typical Specimen of Table of Contents

<Font Style Times New Roman Font Size 13>

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LIST OF SYMBOLS AND ABBREVIATIONS

HOA	-	Acetic acid
Al	-	Aluminum
ASTM	-	American standard testing mesh
$CaCO_3$	-	Calcium carbonate
CIA	-	Chemical index of alteration
EF	-	Enrichment factor
$_p$	-	Frequency of the peak
Ω	-	Frequency of the waves
FP	-	First percentile
ɣ	-	Gamma g
HCl	-	Hydrochloric acid
Fe_2O_3	-	Iron oxide
MgO	-	Magnesium oxide
$_m$	-	Mean wave direction mg
HNO_3	-	Nitric acid
OC	-	Organic carbon ppm