



ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE COIMBATORE-641 047.

MANUAL FOR PREPARATION OF Ph.D./M.S.(By Research)/M.Tech.(By Research) THESIS

(Prescribed Format and Specification)

1. GENERAL:

The manual is intended to provide broad guidelines to the research Scholars in the preparation of the thesis. In general, the 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) and demonstrating 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 plainly stated and honestly appraised.

2. NUMBER OF COPIES TO BE SUBMITTED FOR EVALUATION:

Ph.D. Thesis : Three copies are to be submitted to the University.

3. SIZE OF THESIS:

The size of thesis should not exceed 300 pages of typed matter reckoned from the first page of Chapter 1 to the last page of the Appendix.

4. ARRANGEMENT OF CONTENTS OF THESIS:

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

1. Cover Page & Title page (As shown in Annexure II)
2. Bonafide Certificate (as shown in Annexure III)
3. Abstract
4. Acknowledgement
5. Table of Contents (As shown in Annexure –IV)
6. List of Tables
7. List of Figures
8. List of Symbols, Abbreviations and Nomenclature
9. Chapters
10. Appendices
11. References
12. List of Publications
13. Curriculum Vitae

The Tables and Figures shall be introduced in the appropriate places in the text of the thesis.

5. PAGE DIMENSIONS AND MARGIN:

The dimensions of the final bound 3 copies of the thesis report should be 290mm x 205mm. Standard A4 size (297mm x 210mm) paper may be used for preparing the copies.

The 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 bound with black calico cloth and using flexible cover of thick white art paper.

Tables and figures should conform to the margin specifications. Large size figures should be photographically or otherwise reduced to the appropriate size before insertion.

6. 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 included also in this section.

The headings of all items 2 to 12 listed in section 4 should be typed in capital letters without punctuation and centered 30mm below the top of the page. The text should commence 2 spaces below this heading. The page numbering for all items 1 to 8 should be done using lower case Roman numerals and the pages thereafter should be numbered using Arabic numerals.

6.1 Cover Page & Title Page - A specimen copy of the Cover page & Title page for thesis are given in Annexure II.

6.2 Bonafide Certificate – The Bonafide Certificate shall be in double line spacing using Font Style Times New Roman Font Size 13, as per the format shown in Annexure III.

The certificate shall carry the research scholar's signature and 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 details specified as above should be included wherever it is applicable.

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

6.4 Acknowledgement – The acknowledgement shall 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.

6.5 Table of contents - The table of contents should list all material following it as well as any material 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 in lower case Roman letters are to be accounted for them. One and a half spacing should be adopted

for typing the matter under this head. A specimen copy of the Table Contents for thesis is given in Annexure IV.

6.6 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.

6.7 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.

6.8 List of Symbols, 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 contents on the right side.

6.9 Chapters - The chapters may be broadly divided into 3 parts (i) Introductory chapter, (ii) Chapters developing the main theme of the thesis, (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.

6.10 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 made in the contents page also.

* The list of publications made by research scholar during the period of research, shall be brought in the Appendix titled, as List of Publications and the same shall be reported in the contents.

6.11 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. 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 should be indicated. 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

- An improved algorithm has been adopted in literature (Natarajan 1990)
- Jhon and Mckay (1999) have dealt at length this principle.
- The problem of mechanical manipulators has been studied by Shin et al (1984) and certain limitations of the method used, has been pointed out by Shin et. al. (1984 a).

The listing should be typed 4 spaces below the heading "REFERENCES" in alphabetical order in single spacing left-justified. 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 year and other details. A typical illustrative list given below relates to the citation example quoted above.

REFERENCES

1. Kannadasan .T and Gopalakrishnan .K "Issues and Challenges of Academic Research in India", Journal of IPE, Manufacturing Technology and Management, Vol.3, No.2, pp.131-138, 2009.
2. Devadasan .S.R. "Study of Various Quality Models in Engineering Educational Institutions", Proceedings of the International Conference : TEAM TECH 2007, IISc, Bangalore, India, October 4-6, pp.115-122, 2007.
3. Verdu, S. Multiuser Detection, Cambridge University Press, New York, 2008.
4. Massey, J.L. and Mittelhlzer, T. "Welch's bound and sequence sets for code – division multiple–access systems" in sequence II, Methods in Communication, Security and Computer Sciences, R. Capocelli,A. De Santis and U. Vaccaro, Eds. Springer-Verlag, New York, 2007.

6.12 Curriculum Vitae – A Vitae mentioning the salient potentialities of the author shall be made at the end of the Thesis.

The Vitae shall be prepared in double spacing and shall be restricted to a single page.

6.13 Tables and Figures - By the word Table, is meant 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 entire photograph(s) may be reproduced on a full sheet of photographic paper.
- * Photographs if any should be included in the colour Xerox form only. 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.

7. TYPING INSTRUCTIONS

7.1 General

This section includes additional information for final typing of the thesis. Some information given earlier under 'Manuscript preparation' shall also be referred.

The impressions on the typed/duplicated/printed copies should be black in colour.

If Computer printers are used uniformity of the font in the same thesis shall be observed.

A sub-heading at the bottom of a page must have at least 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) Multilane captions
- (v) References

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

7.2 Chapters

The format for typing Chapter headings, Divisions headings and Sub-division headings are explained through 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 Waste Water characteristics

The word CHAPTER without punctuation should be centred 50mm 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 20mm, 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 20mm 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.

8. NUMBERING INSTRUCTIONS

8.1 Page Numbering

All pages numbers (whether it be in Roman or Arabic numbers) should be typed without punctuation on the upper right hand corner 20mm from 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 (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.

8.2 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.

8.3 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 through 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 A 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.

8.4 Numbering of Equations

Equations appearing in each Chapter or Appendix should be numbered serially, the numbering commencing a fresh for each Chapter or Appendix. Thus for example, an equation appearing in Chapter 2, if it happens to be the eighth equation in that Chapter should be numbered (2.8) thus:

$$\frac{C(s)}{R(s)} = \frac{G_1 G_2}{1 + G_1 G_2 H} \quad (2.8)$$

While referring to this equation in the body of the thesis it should be referred to as Equation (2.8).

9. BINDING SPECIFICATIONS

- Thesis (3 copies) should be bound using flexible cover of thick white art paper. The spine for the bound volume should be of black Calico of 20mm width. The cover should be printed in black letters and the text for printing should be identical to what has been prescribed for the title page.
- A copy of the Ph.D. thesis should be reduced to A5 size with printing on both sides with hard bound binding in white colour and submitted after the viva-voce examination duly certified by the supervisor that all the corrections suggested by the examiners have been carried out with signature. The recommendations of the Viva Board Examiners as per the specimen copy of the Annexure IV should be placed between the Title Page and Bonafide Certificate on binding.
- One copy of the Ph.D. thesis should be submitted in CD after the viva-voce examination is completed along with the A5 hard copy of the thesis.

ANNEXURE II

(A typical Specimen of Cover Page & Title Page)

**CERTAIN INVESTIGATIONS ON THE STABILITY OF
LINEAR TIME INVARIANT SYSTEMS**

 <1.5 line spacing>

A THESIS

Submitted by

 <Italic>

SIVA M

in partial fulfillment for the award of the degree

of

 <1.5 line spacing>

DOCTOR OF PHILOSOPHY



**FACULTY OF ELECTRICAL ENGINEERING
ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE**

COIMBATORE - 641 047

<1.5 line spacing>

JANUARY 2010

**CERTAIN INVESTIGATIONS ON THE STABILITY OF
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ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE**

COIMBATORE - 641 047

JANUARY 2010

ANNEXURE III

(A typical Specimen of Bonafide Certificate)

ANNA UNIVERSITY OF TECHNOLOGY,COIMBATORE 641 047

BONAFIDE CERTIFICATE

Certified that this thesis titled “**CERTAIN INVESTIGATIONS ON THE STABILITY OF LINEAR TIME INVARIANT SYSTEMS**” is the bonafide work of **Mr.SIVA.M** who carried out the research under my supervision. Certified further that to the best of my knowledge 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 on an earlier occasion of this or any other candidate.

<<Signature of the Research Scholar>>

SIGNATURE

<<Name>>

RESEARCH SCHOLAR

<<Signature of the Supervisor>>

SIGNATURE

<<Name>>

SUPERVISOR

<<Academic Designation>>

<<Department>>

<<Full address of the College>>

ANNEXURE IV

(A typical Specimen of Table of Contents)

TABLE OF CONTENTS

CHAPTER NO.	TITLE	PAGE NO.
	ABSTRACT	iii
	LIST OF TABLES	xvi
	LIST OF FIGURES	
	xviii	
	LIST OF SYMBOLS, ABBREVIATIONS	
	xxvii	
1	INTRODUCTION	1
		1
1.1	GENERAL	2
1.2	USE OF INDUSTRIAL WASTE IN CONCRETE-MAKING	5
1.2.1	General	12
1.2.2	Beneficiation Ceramic Waste	19
1.2.3	Test on Ceramic Waste Coarse Aggregate	25
1.2.3.1	General	29
1.2.3.2	Beneficiation Ceramic Waste	33
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1.3	SUSTAINABLE CONCRETE TECHNOLOGY	58
1.4	CERAMIC INDUSTRIAL WASTE AS COARSE AGGREGAT	69
2	LITERATURE REVIEW	75
		99
2.1	GENERAL	100
2.2	ALTERNATE AGGREGATES	
2.3	RECYCLING	

ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE

Proceedings of the Ph.D. Viva Voce Examination of Mr./Ms.....
held at..... am/pm onin <College Name, Place>.....

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The Ph.D. Viva-Voce Examination of
Mr./Ms.....
on his / her Ph.D. thesis entitled

“

.....

was conducted in the <Place of Viva voce examination > at am/pm on

The following members of the Oral Examination Board were present :

- | | |
|----------------------------------|-------------------------|
| 1. <Name, Designation & Address> | Thesis Examiner |
| 2. <Name, Designation & Address> | Expert Member |
| 3. <Name, Designation & Address> | Supervisor and Convener |

The Research scholar Mr./Ms..... presented the salient features of his/her Ph.D. work. This was followed by questions from the board members. The questions raised by the Examiners were also put to the research scholar. The research scholar answered the questions to the full satisfaction of the board members.

Based on the research scholar's work, his / her presentation and also the clarifications and answers by the scholar to the questions, the board **recommends** that Mr./Ms. **be awarded** the Ph.D. degree in the Faculty of

- 1.
- 2.
- 3.

Note: A report of one page highlighting the research findings of the scholar signed by the oral examination board has to be enclosed with this proceeding.