

## **MANUAL FOR PREPARATION OF Ph.D THESIS (Prescribed Format and Specification)**

### **1. GENERAL:**

The manual is intended to provide broad guidelines to the Ph.D 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: Two copies of the thesis with a soft copy( CD form-PDF format) are to be submitted to the University for the verification of thesis format by inch committee constituted by Sathyabama University. Further, five copies of the thesis with a soft copy( CD form-PDF format) are to be submitted after carrying out the inch committee recommendations and suggestions.

### **3. SIZE OF THE THESIS:**

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

### **4. ARRANGEMENT OF CONTENT OF THESIS:**

The Sequence in which the thesis material should be arranged and bound should be as follows.

- a. Cover page & Title page
- b. Bonafide certificate
- c. Acknowledgement
- d. Abstract
- e. Table of Contents
- f. List of Tables
- g. List of Figures
- h. List of Symbols, Abbreviations and Nomenclature
- i. Chapters
- j. Appendices
- k. References
- l. List of Publications
- m. Curriculam Vitae

The tables and Figures shall be introduced in the appropriate places.

### **5. PAGE DIMENSIONS AND MARGIN:**

The dimensions of the final bound 5 copies with a soft copy(CD form-PDF format) of the thesis report should be 290mm x 205mm Standard A4 size(297mmx210mm) 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	:	40 to 45 mm
Right side	:	20 to 25 mm

The thesis should be prepared on good quality white paper preferably not lower than 80 gsm.

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

## **6. MANUSCRIPT PREPARATION:**

The Scholar shall supply a typed copy of the manuscript to the supervisor for the purpose of approval. 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 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 50mm below the top of the page. The text should commence 4 spaces below this heading. The page numbering for all items 1 to 8 should be done using lower case Roman numerals and the pages there after 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 1.
- 6.2 Bonafide Certificate** – The Bonafide Certificate shall be in double line spacing using Font Style Times New Roman font Size 14, as per the format shown in Annexure 2.
- 6.3 Abstract:** Abstracts should be an essay type of narration not exceeding four pages outlining the research problem, the methodology used for tackling it and summary of the findings, when typed double line spacing, Font style Times New Roman and Font size 14.
- 6.4 Table of Contents:** The table of contents should list all material following it as well as any material which precedes it. The title page and Bonafide certificate 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 of Contents for thesis is given in Annexure 3.
- 6.5 List of Tables:** The list should use exactly the same captions as they appear above the tables in the text. One and half spacing should be adopted for typing the matter under this head given in Annexure 4.
- 6.6 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 given in Annexure 5.
- 6.7 List of Symbols, Abbreviations and Nomenclature:** One and half spacing should be adopted for typing the matter under this head. Standard symbols, abbreviations etc. should be used in Annexure 6.
- 6.8 Chapters:** The chapters may be broadly divided in to 3 parts (i) Introductory chapter, (ii) Chapters developing the main theme of the thesis, (iii) Results, Discussion and Conclusion. The main text will 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.

**6.9 Appendices:** Appendices are provided to give supplementary information, which if included in the main text may serve as a distraction and could be 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.

**6.10 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 of reference. The citation may assume any one of the following forms.

The authors publications during the period of research should not be included in the references and can be separately mentioned as in 6.9.

Example of Citation:

- (i) An improved algorithm has been adopted in literature ( Tsychiya 1980)
- (ii) Jankins and Walts(1968) have dealt at length this principle
- (iii) The problem of mechanical manupulators has been studied by Shin et al (1948) and certain limitations of the method used, has been pointed out by Shin et al (1948 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. ASM Metals Handbook, 1990, Vol.2, ASM, Materials Par, OH.
2. J.F.Nye, 1985, Physical properties of Crystals, Oxford University Press, Oxford, UK.
3. J.L.Murray, (1985) (30) 5, Int. Met. Rev.
4. W.L.Morris, B.N.Cox and M.R.James, (1987) (35) 1055, Acta Metall,.

**6.11 Curriculum Vitae** – A Vitae mentioning the salient potentialities of the author shall be made at the end of the Thesis and shall be made in **three** paragraphs.

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

**6.12 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.
- The caption, numerals, Symbols or characters used in tables or figures, should be only typed and not to be hand written.
- 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 INTRUCTIONS**

### **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 printer are used uniformity at the font in the same thesis shall be observed.

Certain symbols, characters or markings not found on a standard typewriter may be hand written using Indian ink of Stylus pen(in case stencil sheets are used). Corrections, interlineations and crossing out of letters or words will not be permitted in any of the copies of the thesis intended for submission. Erasures, if made, should be neatly carried out in all copies.

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 14.

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 15 mm either margin.

## **7.2 Chapters**

The format for typing Chapter headings, Divisions headings and sub-division headings are explained through the following illustrative example.

Chapter heading	:	CHAPTER 1 INTRODUCTION
Division heading	:	1.1 OUTLINE OF THESIS
Sub-division heading	:	1.1.2 Literature review

The word CHAPTER without punctuation should be centered 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 numbering should be left-justified. The typed material directly below division (or) subdivision heading should commence two spaces below it and should be offset 20mm from the left hand margin. Within division or sub-division paragraphs are permitted. Even paragraph should commence 3 spaced below the last line of the preceding paragraph, the first letter in the paragraph being offset from the left hand margin by 20mm.

## **8. NUMBERING INSTRUCTIONS**

### **8.1 Page Numbering:**

All page numbers (whether it is 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-Division**

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 first chapter should be serially numbered using Arabic numerals. Appendices included 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 Annexure 2 will be designated as Figure A2.3. 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 Equations

Equations appearing in each Chapter or Appendix should be numbered serially, the numbering should commence freshly 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:

$$\sigma_{xy} = \frac{E}{(1 - \nu^2)} (\epsilon_{x,y} + \nu\epsilon_{y,x}) \quad (2.8)$$

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

#### 9. BINDING SPECIFICATIONS

- Three copies of the thesis are to be submitted along with soft copy (CD form-PDF format) should be bound using flexible cover of thick white art paper. The cover should be printed in black letters and the text for printing should be identical to what has been prescribed in the title page.
- The fourth copy of the Ph.D thesis should be reduced to A5 size with printing on both sides with hard bound binding and submitted after the viva-voce examination duly certified by the supervisor that all the corrections suggested by the examiner have been carried out with signature. The recommendations of the Viva Board Examiners should be placed between the Title page and Bonafide certificate on binding.

ANNEXURE 1

(A typical Specimen of Cover Page & Title Page)

<Font Style Times New Roman – Bold>

**STUDY OF COMBUSTION PHENOMENA IN PETROL  
ENGINE FOR PROPER DEVELOPMENT OF POWER  
WITH LESS KNOCKING**

<Font Size 18><1.5 line spacing>

**A THESIS**

<Font Size 14>

***Submitted by***

<Font Size 14><Italic>

**R.SUBASH CHANDRA BOSE**

[ Reg. No. 2004194104]

<Font Size 16>

*in fulfilment for the award of the degree*

*of*

<Font size 14> <1.5 line spacing>

**DOCTOR OF PHILOSOPHY**

<Font Size 16>



**FACULTY OF MECHANICAL ENGINEERING <Font Size 16>**

**SATHYABAMA UNIVERSITY <Font Size 18>**

**JEPPIAAR NAGAR, CHENNAI – 119 <Font Size 14>**

**MARCH 2008**

<Font Size 14>

Annexure 2  
( Typical Specimen of Bonafide Certificate)  
<Font Style Times New Roman, Font size 16 >

**BONAFIDE CERTIFICATE**

Certified that this thesis titled “ \_\_\_\_\_  
\_\_\_\_\_” is the bonafide  
work of **Mr./Ms.** \_\_\_\_\_ [ **Reg. No.** \_\_\_\_\_ ] who  
carried out the research under my/our supervision. Certified further, that to the best of  
my/our 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  
thesis of any other candidate.

**SUPERVISOR**

Signature :

Name (IN BLOCK LETTERS) :

Academic Designation :

Department :

University/College/Organization  
with address :

Annexure 3  
(A typical Specimen of Table of Contents)  
<Font style Times New Roman, Font size 14>

**TABLE OF CONTENTS**

<b>CHAPTER NO.</b>	<b>TITLE</b>	<b>PAGE NO.</b>
	<b>ABSTRACT</b>	<b>iii</b>
	<b>LIST OF TABLES</b>	<b>xvi</b>
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<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1	GENERAL	1
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1.3	COMPARISON OF LIQUID FUELS & GASEOUS FUELS	51
<b>2</b>	<b>REVIEW OF LITERATURE</b>	
2.1	GENERAL	73
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2.3	KNOCKING	113

Annexure 4

**LIST OF TABLES**

<Font style Times New Roman, Font size 14>

<b>TABLE NO.</b>	<b>TITLE</b>	<b>PAGE NO.</b>
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<Font style Times New Roman, Font size 12>

Annexure 5

**LIST OF FIGURES**

<Font style Times New Roman, Font size 14>

<b>FIGURE NO.</b>	<b>TITLE</b>	<b>PAGE NO.</b>
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Annexure 6

**LIST OF SYMBOLS**

<Font style Times New Roman, Font size 14>

$\Phi_{ik}$  - Mode shape co-efficient at floor i in mode k

$\varepsilon$  - Strain

<Font style Times New Roman, Font size 12>