

NATIONAL INSTITUTE OF TECHNOLOGY MIZORAM

DEPARTMENT OF ECE



GUIDELINES FOR THESIS/DISSERTATION/REPORT

**PREPARATION AND SUBMISSION
FOR**

Ph.D./PG/UG STUDENTS

Preamble

A thesis/dissertation/report (hereinafter called the ‘thesis’) is a research report. The report concerns a problem or series of problems in your area of research and it should describe what was known about it previously, what you did towards solving it, what you think your results mean, and where or how further progress in the field can be made. For the first time reader of a thesis the reported findings must be unknown. In other words, the Institute requires that a thesis makes an original contribution to human knowledge: your research must discover something hitherto unknown. The examiners who will read the thesis will be the experts in the general field of your thesis. But on the exact topic of your thesis, you are the only expert. Therefore, thesis should be prepared in such a way that the topics are clear to a reader who has not spent most of the last three years thinking about it. However, inclusion of undue/unnecessary contents anywhere in the thesis, just to increase its volume, is always undesirable.

While utmost attention must be paid to the content of the thesis which is being submitted in partial fulfilment of the requirements of the respective degree, it is necessary to prescribe a standard and uniform format across the departments of the Institute. The purpose of this document is to serve this requirement.

1. Thesis Submission Procedure

Thesis needs to be submitted as per the format and criterion given in this document.

1.1 Submission for Record (Final Submission)

Copies of the final thesis to be submitted are as follows:

- One copy for the Department
- One copy to the Central Library
- One or more copies to the supervisor/supervisors

2. Manuscript Preparation Tools and Printing

Thesis needs to be prepared using a standard text processing software (MS office, Latex etc) and must be printed in black text (except the cover page and also figures, images as explained in this document), using a laser or letter quality printer in standard typeface . The standard typeface used must be same through out the entire thesis. Once the first copy is printed, the rest of the required copies may be photocopied. **The printing/photocopying shall be double sided only.**

3. Sequence of Presentation

The following sequence shall be followed for the organization of all components of the thesis

Components	Descriptions	Formats (where applicable)
Preliminaries	Cover page (front cover) and title page	Applicable formats/descriptions as furnished in this document
	Declaration	
	Certificate	
	Abstract/Synopsis	
	Acknowledgement and/or Dedication (where included)	
Thesis Body	Table of contents	
	List of Symbols, Figures, Tables etc. (wherever applicable)	
	Introduction	
	Thesis body including literature survey, summary and conclusions, and reference Materials	
Appendix or Appendices	Where included	
Publication by the Candidate	Articles, technical notes etc. on the thesis Topic	

3.1 Preliminaries

3.1.1. Cover and Title Pages

The general format of a sample title/cover page has been appended at the end of this document. In general, the cover/title page shall contain the following details:

- Full thesis title in 7 mm (20 points, 1 point=0.35 mm) size font properly centered and positioned at the top portion.
- Full name of the candidate in 16 point's font size properly centered at the middle of the page. In case of title page, this shall be followed by the name(s) of the supervisor(s) in a separate line. Remember that the name(s) of supervisor(s) shall be there only in the title page, but not in the cover page.
- A 40 mm diameter Institute emblem followed by the full name of the department, institute, and the year of submission, each in a separate line properly centered with 20 point font size and located at the bottom of the page shall be placed.
- The cover shall have printing on its side the name of the author (candidate), thesis title, name of the department, and year of submission in this order. If required, short name, thesis title etc. and reduced font size may be used for this purpose.
- All lettering in the cover page shall be embossed in gold colors.
- A monochrome (black text on white paper) print out/photocopy is to be used for the title page. On the back side of the title page, the following copyright statement properly centered and placed at the center of the page shall be printed.

3.1.2. Declaration

A signed declaration sheet as in the appended format is required to be included in the thesis.

3.1.3. Certificate

As per the appended format.

3.1.4. Abstract/Synopsis

The abstract should be a distillation of the thesis – a concise description of the problem(s) addressed, method of solving, findings, and conclusions all in one place. As such, it shall highlight the important features of the thesis. It must be self contained without any references. Even though it appears at the beginning, it is not an introduction.

Abstract to be Included in the Thesis: It is a compressed summary, from starting to final findings, of the research. It should be able to help the readers to quickly ascertain the purpose of the thesis. An abstract is a self contained, short, and powerful statement that describes the entire work.

3.1.5. Acknowledgment and/or Dedication Sheet

This part(s) of the thesis has no specified format, except the page margins as in Sec. 4.1.2. Furthermore, it is optional for the author. If the candidate desires to acknowledge/dedicate his/her thesis, he/she may include the same.

3.2 Thesis Body: Organization of the Thesis Body

The thesis shall be organized in a number of chapters, starting with a general introduction leading to your work followed by literature review and ending with a general discussion and conclusions of your work. A thesis must be an integrated whole of the research work and each of the other chapters are presented in a coherent and logical way. As such, each of the other chapters shall have precise title reflecting the content best. A chapter can be subdivided into sections, sub-sections, sub-sub-sections and so on as to present the content discretely with due emphasize.

3.2.1 Table of Contents

This section of the thesis shall list all materials that follow it. It shall enlist titles of the chapters, sections, and subsections including reference and appendices (if any) using decimal notations (as in text), with corresponding page numbers against them flushed to the right.

3.2.2 List of Symbols, Figures, Table etc.

Symbols, Figures, Tables etc. shall be listed separately. List of symbols typically shall contain three columns – symbol, brief description/definition, and the section/subsection number where it appeared first. Similarly, the list of Figures/Tables shall also contain three columns – Figure/Table no, its caption, and the section/subsection where it appeared.

3.2.3 Introduction

Title of the first chapter shall be the Introduction. It shall start with a brief history of the reported work. It shall justify the pros and cons of the present problems posed, and set the aim and scope of his/her work which shall mitigate the present problems. It may end up with highlights of the significant contributions of the present work.

3.2.4 Literature Review

Next chapter shall be on review of the literature. However, its title can vary from author to author without losing its true spirit. It shall present a review of the state of the work till date which naturally leads to the present topic of investigation. While there is no end to present such a review, the extent and emphasis should be limited to the extent which is relevant to the nature of investigation only.

3.2.5 Report on the Present Investigation

The contributions from the research are presented in this portion of the thesis in a number of chapters. The exact structure in these chapters will depend on the nature of research (theoretical or experimental) carried out. However, the following general guidelines shall be followed.

- When reporting theoretical work that is not original, you will usually need to include sufficient material to allow the reader to understand the arguments used and their physical bases. But do not reproduce pages of algebra/text that the reader can find in a standard text book; only refer such works and concentrate on the physical arguments leading to your theory. Furthermore, do not include any theory that you are not going to relate to the work you have done.
- Extensive and long treatment, tedious derivations, etc., if any, should be presented in Appendices.
- Clearly describe the experimental (if any) setup, procedure/technique adopted, methodologies developed and adopted.

3.2.6 Results and Discussions

Whether the work is experimental or theoretical, this vital part shall always be present in a thesis. Depending upon the nature of investigations, a separate chapter (last but one) with title “Results and Discussions” may be presented for summarizing your results and highlighting their implications. Typically, a thesis on the findings on a single but broader aspect of a composite problem shall contain this chapter. For distributed findings, however, this can be presented as the subsections of the relevant chapters towards the end.

3.2.7 Concluding Summary and Scope of Further Works

This will be the last chapter of the thesis, which shall usually have two parts. A brief summary report of the entire work carried out shall form the first part. Usually, it is longer than the final section of your abstract. Conclusions derived from the presented works and results shall form the last part. It is often the case with scientific investigations that more questions than answers are produced. Therefore, do not hesitate to present a critical review of your findings, if any. Such critical reviews suggest any interesting further avenues for improving your work which, in turn, helps others who want to continue from where you have stopped. Finally, your thesis must highlight the practical

implications of your work to the society.

3.2.8 Appendix/Appendices

Appendix refers to any addition (supplementary materials) to your thesis at the end. In cases where lengthy derivations, details information, etc could not be accommodated in the main text, without the same the thesis may remain incomplete. Therefore, present such materials as separate appendices numbering them in Roman capitals (e.g., Appendix I, Appendix II etc.).

3.2.9 Literature Citation

All cited literature must appear in the list of references and numbered sequentially as they are referred in the text of the thesis. All particular works consulted but not specifically cited should be listed as Bibliography which shall appear after the References. The title

“References” and “Bibliography” shall not be numbered. Cited materials shall be listed chapter-wise and at the end of the concerned chapter. A citation repeated in more than one chapter shall accordingly be listed repeatedly.

3.2.10 Publications by the Candidate

Articles, technical notes, book chapters etc. published by the candidate from his/her research work may be separately listed with same format used for listing the references. Reprints of selected journal publications may also be included in the thesis after the list of publications, that is, at the end of the thesis. Such publications shall, however, not be cited in the thesis.

4. Thesis Format

4.1 Paper Specification

4.1.1 Quality

Thesis shall be printed/ photocopied on executive white bond papers only.

4.1.2 Paper Size and Margins

- The paper shall be either standard A4 size (297 mm × 210 mm) or a book size of (235 mm × 185 mm).
- Top and bottom margins should be 25 mm, right margin should be 20 mm, and the left margin should be 35 mm for both textual and nontextual (figures, tables, etc) pages. The header footer should be 10 mm each.
- Minimum space below a sub-section head (title) at the bottom of the page should have at least 2 full lines; otherwise it should begin on the next page.

4.1.3 Text Font, text Size, and Line Spacing

Font: Throughout the thesis, only the standard (Times New Roman or Sans Serif, but not the combination of the two) fonts shall be used.

Final Submission: The general text of the manuscript shall be 1.5 lines spacing with a font size of 12 points. However, tables, quotations, footnotes, captions, and referencing materials shall be single spacing with 10 point text size.

4.1.4 Pagination

Beginning with the first page of chapter 1 (Introduction) of the thesis, all pages through the appendices shall be numbered consecutively using Arabic numerals in 12 point fonts. Page numbers of all the pages where a chapter begins shall appear at the center of the footer, irrespective of whether header style is chosen or not. If header style is not chosen, all other page numbers shall also appear at the same place. But when the header style is opted, the other page numbers shall appear at the right and left top corners (aligned to the right and left) for the even and odd numbered pages, respectively.

Page numbers of all the pages, starting from the title page to the page before the chapter 1 starting page, shall be lower case Roman numerals (e.g. i, ii, iii etc.), placed at the center of footer. However, the page number on the title page shall not be printed.

4.2 Header Format

Candidates shall have the options either to opt for header style or not. However, when the header style is chosen, the header shall contain the chapter title on the even numbered pages and section title on the odd numbered pages. The section title shall start from the following relevant page where it appeared first. The page number and title shall be on the same line. The recommended horizontal distance between the title and corresponding page number is around 10 mm (six characters). The titles shall be capitalized with a font size of 8 points.

4.3 Paragraph Format

The first paragraph of each section and subsection shall start without any indentation. A vertical space of around 12 points should be left between the section title line and the first paragraph of each section and subsections. All other paragraphs should be indented by around 6 characters, with a vertical space of around 6 points between two consecutive paragraphs. All the paragraphs in the thesis shall be in single column format with full justification.

A paragraph should normally comprise more than one line. A single line paragraph shall not be placed at the top or bottom of a page.

4.4 Chapter and Section Format

4.4.1 Chapters

A chapter always begins on a fresh odd numbered page. The capitalized word “CHAPTER” with a font size of 20 should begin with an additional top margin of 30 mm (total 50 mm) either left or right aligned. Below this line put the chapter number centering with the word “chapter” and with a font size of 36 which is flushed right. Next, place the chapter heading with 20 font size and leaving around 18 points vertical space. The number of lines in the heading shall be decided keeping in mind that the heading should occupy around half of the writable horizontal page area. Leave around 72 points vertical space after chapter heading.

In the chapter heading, capitalize the first letter of the first and last words and all the words including articles (a, an, the), subordinating conjunctions (If, Because, That, Which), except coordinating conjunctions (and, but, or, for etc.). Also capitalize all the abbreviations that are otherwise lower case (e.g., DC instead of Dc). Use boldface letters and numbers only.

4.4.2 Sections and Subsections

A chapter is usually needed to be divided into sections, subsections, sub-subsections etc. so as to present concepts with different aspects separately. As mentioned above, a vertical space of around 72 point should be left between the chapter heading and the title of the first section of every chapter. For all subsequent sections/subsections, leave a vertical space of around 24 points before the section/subsection headings. A vertical space of around 12 points should always be left between the first line and the title of every section/subsection.

Sections and subsections shall be numbered chapter wise and consecutively. For example, say the first and second sections in chapter 5 shall be numbered as 5.1 and 5.2, respectively. Likewise, the third subsections of sections 1 and 2 in a chapter 4 shall be numbered as 4.1.3 and 4.2.3, respectively. Same style as in chapter heading but with font size of 14 and 12 for section and subsections, respectively, shall be followed for their titles, with a gap of around six characters between their numbers. Use boldface letters and numbers and (unlike chapter heading) the entire writable horizontal space to write their numbers and titles.

Sub-subsection of a subsection should not be numbered. The title of such topic should all be boldface capitalized letter followed by a colon: the content of the same should start after the colon leaving a single character. Leave a space of around 12 points before a sub-subsection. Further division of topics is not recommended.

4.5 Tables, figures, and Equations

- All tables and figures should be printed on the same papers used to print the text.
- As far as possible, tables and figures are presented in portrait style.
- All tables, figures, and equations must be numbered sequentially and chapter-wise using Arabic numerals. It must reflect the chapter number also, e.g. 2.1, 6.25 etc. Tables may, however, be numbered using capital Roman numerals, if so desired. Use boldface capital letters and numbers (separated by a single space) to number a figure and table, e.g., **FIGURE 2.1, TABLE 3.2**. While a figure number should be placed below the figure, a table number should be placed above the table. A figure/table should be separated from its number by 1.5 lines. Equations shall form a separate line, having 6 points paragraph separation above and below, with equation numbers within parenthesis and flushed to the right.
- When a figure or table is referred to in the body of the text, the first letter of the word needs to be capitalized with appropriate abbreviations as, for instance, Table 17 and Fig. 24.
- When an equation is referred to in the text and appears as the first word of the sentence, it needs to be capitalized without any abbreviation as, for instance, Equation (2.5). In all other cases of referring an equation, simply write the equation number in parenthesis as, for example, (2.5).

- All figures and tables shall be appropriately captioned using sentence style format and immediately below the corresponding numbers with an additional space of 6 points in between. If more than one line is needed for the caption they should be separated with single line spacing. A caption needs to be justified with the table/figure borders.
- Font sizes of legends, axis labels etc. of figures should be sufficiently large so that even after compression of the figure, they are legible enough (having same sizes as in the general text).

Short (less than around half of the writable page area) figures and tables should be presented immediately following their first mention in the text and preferably on the upper portion (before the text) of the following page or bottom portion of the same page, but separated by double lines spacing from the text. If they are placed in between then they should be separated by double lines spacing from both above and below. On the other hand, large figures and tables should be presented on page(s) following their first mention in the text.

- Images, Photographs, etc. must be scanned in resolution at least 600 dpi

4.6 Reference Format

- No fixed format is prescribed. The style of citation and listing followed by any of the standard journals in the candidate's subject can be followed. But chosen format must be consistently followed through out the thesis. For example, candidates of EE/ECE/CSE can preferably follow the IEEE style, CE may follow ASCE style, ME may follow ASME style etc.

6. Concluding Remarks

This guide lists only the salient requirements for preparing the thesis. Over and above, a thesis should be reader-friendly in its presentation. Several aspects need a more elaborations, which have not included here. Wherever confusion arises, students should follow appropriate guidelines from a standard literature from his/her research area. However, a uniform style and format must be followed through out the entire thesis.

Format for the Cover/Title Sheet

TITLE

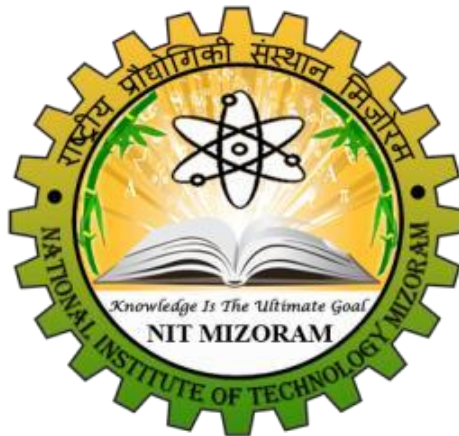
A Thesis Submitted in

Partial Fulfilment of the Requirements for the Degree of Bachelor of Technology etc.
in Electronics and Communication Engineering

Name of the Student

Registration no

Under the Supervision of
Name of Supervisors



Name of the Department

NATIONAL INSTITUTE OF TECHNOLOGY MIZORAM (Month, Year)

*Format for the Declaration Sheet***DECLARATION**

Thesis Title:

Degree for which the Thesis is submitted:

I declare that the presented thesis represents largely my own ideas and work in my own words. Where others ideas or words have been included, I have adequately cited and listed in the reference materials. The thesis has been prepared without resorting to plagiarism. I have adhered to all principles of academic honesty and integrity. No falsified or fabricated data have been presented in the thesis. I understand that any violation of the above will cause for disciplinary action by the Institute, including revoking the conferred degree, if conferred, and can also evoke penal action from the sources which have not been properly cited or from whom proper permission has not been taken.

(Signature)

Name of the Student:

Registration no.:

Date: --/--/----

*Certificate Format***CERTIFICATE**

It is certified that the work contained in this thesis entitled 'thesis title' submitted by **(NAME OF THE STUDENT)**, **Registration no** ____ for the award of B.Tech is absolutely based on his/her own work carried out under my/our supervision and that this work/thesis reported herein has not been submitted elsewhere for any degree/diploma by any other candidate.

Signature of Supervisor(2)

Signature of Supervisor(1)

Name of Supervisor(2):

Name of Supervisor(1):

Department

Department

Institute Name

NIT Mizoram

Date: --/--/----