<THESIS TITLE>

A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

**<B.Tech / M.Tech / Ph.D>**

BY



Electronics and Communication Engineering

INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY DELHI NEW DELHI– 110020

<DATE>

# Acknowledgement

<Optional: if Acknowledgements page is not used, delete the entire page, including the following page break. Do not delete the section break above. It is needed to initiate the printing of page numbers from this page on. B.Tech reports typically do not require acknowledgements.

Use the singular heading even if you have many acknowledgments. Please list sponsor and financial over here.>

# Abstract

<The abstract must be a concise yet comprehensive reflection of what is in your report. In particular, the abstract must be self-contained, without abbreviations, footnotes, or references. It should be a microcosm of the full report. The abstract must be between 350-500 words. The abstract must be written as one paragraph, and should not contain displayed mathematical equations or tabular material. Ensure that your abstract reads well and is grammatically correct.>

# Table of Contents

HIDDENT TEXT: If you choose to place the chapter number (“Chapter 1”) and the chapter title (“Introduction”) on different lines, the automatically generated table of contents will reflect that format. After creating a new table of contents, set them on the same line by deleting the page number and paragraph marker at the end of each chapter number line.

List of Tables (if any: Heading 2) nn

List of Figures (if any; Heading 2) nn

List of Illustrations (if any; Heading 2) nn

Chapter n: Chapter Title (Heading 2) nn

Sub-Heading (Heading 3) nn

Sub-Sub- Heading (Heading 4) nn

Sub-Sub-Sub-Heading (Heading 5) nn

Appendix (if any; or Appendices (Heading 2) nn

Glossary (if any; Heading 2) nn

Bibliography/References/Works Cited (Heading 2) nn

# List of Tables

Table n: Title of Table: (Heading 7,h7 style: TOC 7) nn

Table n: (This list is automatically generated if the paragraph style Heading 7,h7 is used. Optional: If you do not include a List of Tables, delete the entire page.) nn

# List of Figures

Figure n: Title of Figure: (Heading 8,h8 style: TOC 8) nn

Figure n: (This list is automatically generated if the paragraph style Heading 8,h8 is used. Optional: If you do not include a List of Figures, delete the entire page.) nn

# List of Illustrations

Illustration n: Title of Illustration: (Heading 9,h9 style: TOC 9) nn

Illustration n: (This list is automatically generated if the paragraph style Heading 9,h9 is used. Optional: If you do not include a List of Illustrations, delete the entire page. **Do not delete the section break below.** It is needed to initiate the printing of Arabic page numbers from the next page onwards.) nn

# <Chapter 1: Writing Instructions (Replace with chapter title)>

Writing suggestions taken from IEEE transactions authors guide.

## Math

Use either the Microsoft Equation Editor or the MathType add-on (http://www.mathtype.com) for equations in your report (Insert | Object | Create New | Microsoft Equation or MathType Equation). “Float over text” should not be selected.

Number equations consecutively with equation numbers in parentheses flush with the right margin, as in (1). First use the equation editor to create the equation. Then select the “Equation” markup style. Press the tab key and write the equation number in parentheses. To make your equations more compact, you may use the solidus ( / ), the exp function, or appropriate exponents. Use parentheses to avoid ambiguities in denominators. Punctuate equations when they are part of a sentence, as in (1).

Be sure that the symbols in your equation have been defined before the equation appears or immediately following. Italicize symbols (T might refer to temperature, but T is the unit tesla). Refer to “(1),” not “Eq. (1)” or “equation (1),” except at the beginning of a sentence: “Equation (1) is ... ”

## Units

Use SI (MKS) units.

## Some Common Mistakes

* The word “data” is plural, not singular.
* The subscript for the permeability of vacuum µ0 is zero, not a lowercase letter “o.”
* Use the word “micrometer” instead of “micron.”
* A graph within a graph is an “inset,” not an “insert.”
* The word “alternatively” is preferred to the word “alternately” (unless you really mean something that alternates).
* Use the word “whereas” instead of “while” (unless you are referring to simultaneous events).
* Do not use the word “essentially” to mean “approximately” or “effectively.”
* Do not use the word “issue” as a euphemism for “problem.”
* When compositions are not specified, separate chemical symbols by en-dashes; for example, “NiMn” indicates the intermetallic compound Ni0.5Mn0.5 whereas “Ni–Mn” indicates an alloy of some composition NixMn1-x.
* Be aware of the different meanings of the homophones “affect” (usually a verb) and “effect” (usually a noun), “complement” and “compliment,” “discreet” and “discrete,” “principal” (e.g., “principal investigator”) and “principle” (e.g., “principle of measurement”). Do not confuse “imply” and “infer.”
* Prefixes such as “non,” “sub,” “micro,” “multi,” and “ultra” are not independent words; they should be joined to the words they modify, usually without a hyphen.
* There is no period after the “et” in the Latin abbreviation “et al.” (it is also italicized).
* The abbreviation “i.e.,” means “that is,” and the abbreviation “e.g.,” means “for example” (these abbreviations are not italicized).

## Notations and abbreviations

Define abbreviations and acronyms the first time they are used in the text, even after they have already been defined in the abstract. Abbreviations such as IEEE, SI, ac, and dc do not have to be defined. Abbreviations that incorporate periods should not have spaces: write “C.N.R.S.,” not “C. N. R. S.” Do not use abbreviations in the title unless they are unavoidable (for example, “IEEE” in the title of this report).

## Other Recommendations

* Use one space after periods and colons.
* Hyphenate complex modifiers: “zero-field-cooled magnetization.”
* Avoid dangling participles, such as, “Using (1), the potential was calculated.” [It is not clear who or what used (1).] Write instead, “The potential was calculated by using (1),” or “Using (1), we calculated the potential.”
* Use a zero before decimal points: “0.25,” not “.25.” Use “cm3,” not “cc.”
* Indicate sample dimensions as “0.1 cm × 0.2 cm,” not “0.1 × 0.2 cm2.”
* The abbreviation for “seconds” is “s,” not “sec.” Use “Wb/m2” or “webers per square meter,” not “webers/m2.”
* When expressing a range of values, write “7 to 9” or “7-9,” not “7~9.”
* A parenthetical statement at the end of a sentence is punctuated outside of the closing parenthesis (like this). (A parenthetical sentence is punctuated within the parentheses.) In American English, periods and commas are within quotation marks, like “this period.” Other punctuation is “outside”!
* Avoid contractions; for example, write “do not” instead of “don’t.” The serial comma is preferred: “A, B, and C” instead of “A, B and C.”
* If you wish, you may write in the first person singular or plural and use the active voice (“I observed that ...” or “We observed that ...” instead of “It was observed that ...”).
* Remember to check spelling. If your native language is not English, please get a native English-speaking colleague to carefully proofread your report.

## Guidelines for Graphics Preparation

* Color/Grayscale figures: Figures that are meant to appear in color, or shades of black/gray. Such figures may include photographs, illustrations, multicolor graphs, and flowcharts
* Line Art figures: Figures that are composed of only black lines and shapes. These figures should have no shades or half-tones of gray, only black and white.
* Multipart Figures: These are figures compiled of more than one sub-figure presented side-by-side, or stacked.

Fig. 1. Magnetization as a function of applied field. Note that “Fig.” is abbreviated.

There is a period after the figure number, followed by two spaces. It is good practice to explain the significance of the figure in the caption.

### Accepted Fonts Within Figures

When preparing your graphics, use of one of the following Open Type fonts: Times New Roman, Helvetica, Arial, Cambria, and Symbol. If you are supplying EPS, PS, or PDF files all fonts must be embedded. Some fonts may only be native to your operating system; without the fonts embedded, parts of the graphic may be distorted or missing. A safe option when finalizing your figures is to strip out the fonts before you save the files, creating “outline” type. This converts fonts to artwork what will appear uniformly on any screen.

### Figure Axis labels

Figure axis labels are often a source of confusion. Use words rather than symbols. As an example, write the quantity “Magnetization,” or “Magnetization M,” not just “M.” Put units in parentheses. Do not label axes only with units. As in Fig. 1, for example, write “Magnetization (A/m)” or “Magnetization (Am−1),” not just “A/m.” Do not label axes with a ratio of quantities and units. For example, write “Temperature (K),” not “Temperature/K.” Multipliers can be especially confusing. Write “Magnetization (kA/m)” or “Magnetization (103 A/m).” Do not write “Magnetization (A/m) × 1000” because the reader would not know whether the top axis label in Fig. 1 meant 16000 A/m or 0.016 A/m. Figure labels should be legible, approximately 8 to 10 point type.

### Subfigure Labels in Multipart Figures and Tables

Multipart figures should be combined and labeled before final submission. Labels should appear centered below each subfigure in 8 point Times New Roman font in the format of (a) (b) (c).

### Referencing a Figure or Table Within Your Report

When referencing your figures and tables within your report, use the abbreviation “Fig.”even at the beginning of a sentence. Do not abbreviate “Table.” Tables should be numbered with Roman Numerals.

## TABLES

|  |  |  |
| --- | --- | --- |
| Symbol | Quantity | Conversion from Gaussian and  CGS EMU to SI a |
| Φ | magnetic flux | 1 Mx → 10−8 Wb = 10−8 V·s |
| B | magnetic flux density,  magnetic induction | 1 G → 10−4 T = 10−4 Wb/m2 |
| H | magnetic field strength | 1 Oe → 103/(4π) A/m |
| m | magnetic moment | 1 erg/G = 1 emu  → 10−3 A·m2 = 10−3 J/T |
| M | magnetization | 1 erg/(G·cm3) = 1 emu/cm3  → 103 A/m |
| 4πM | magnetization | 1 G → 103/(4π) A/m |
| σ | specific magnetization | 1 erg/(G·g) = 1 emu/g → 1 A·m2/kg |
| j | magnetic dipole  moment | 1 erg/G = 1 emu  → 4π × 10−10 Wb·m |
| J | magnetic polarization | 1 erg/(G·cm3) = 1 emu/cm3  → 4π × 10−4 T |
| χ, κ | susceptibility | 1 → 4π |
| χρ | mass susceptibility | 1 cm3/g → 4π × 10−3 m3/kg |
| μ | permeability | 1 → 4π × 10−7 H/m  = 4π × 10−7 Wb/(A·m) |
| μr | relative permeability | μ → μr |
| w, W | energy density | 1 erg/cm3 → 10−1 J/m3 |
| N, D | demagnetizing factor | 1 → 1/(4π) |

TABLE I: Units for Magnetic Properties

## Conclusion

A conclusion section is not required. Although a conclusion may review the main points of the report, do not replicate the abstract as the conclusion. A conclusion might elaborate on the importance of the work or suggest applications and extensions.

## Footnotes

Number footnotes separately in superscripts (Insert | Footnote).[[1]](#footnote-1) Place the actual footnote at the bottom of the column in which it is cited; do not put footnotes in the reference list (endnotes). Use letters for table footnotes (see Table I).

## References

* 1. References should cited in text. When they are, they appear on the line, in square brackets, inside the punctuation.
  2. Multiple references are each numbered with separate brackets.
  3. In text, refer simply to the reference number. Do not use “Ref.” or “reference” except at the beginning of a sentence: “Reference [3] shows ... .”
  4. Please do not use automatic endnotes in Word, rather, type the reference list at the end of the report using the “References” style.
  5. In all references, the given name of the author or editor is abbreviated to the initial only and precedes the last name. Use them all; use et al. only if names are not given. Use commas around Jr., Sr., and III in names.
  6. Abbreviate conference titles.
  7. When citing IEEE transactions, provide the issue number, page range, volume number, year, and/or month if available.
  8. When referencing a patent, provide the day and the month of issue, or application.
  9. References may not include all information; please obtain and include relevant information.
  10. Do not combine references. There must be only one reference with each number.
  11. If there is a URL included with the print reference, it can be included at the end of the reference.
  12. Other than books, capitalize only the first word in a report title, except for proper nouns and element symbols.
  13. For a complete discussion of references and their formats, see the IEEE style manual at [www.ieee.org/authortools](http://www.ieee.org/authortools).

***Basic format for books:***

* 1. J. K. Author, “Title of chapter in the book,” in Title of His Published Book, xth ed. City of Publisher, (only U.S. State), Country: Abbrev. of Publisher, year, ch. x, sec. x, pp. xxx–xxx.
  2. G. O. Young, “Synthetic structure of industrial plastics,” in Plastics, 2nd ed., vol. 3, J. Peters, Ed. New York, NY, USA: McGraw-Hill, 1964, pp. 15–64.

***Basic format for journals:***

* 1. J. K. Author, “Name of report,” Abbrev. Title of Periodical, vol. x, no. x, pp. xxx-xxx, Abbrev. Month, year, DOI. 10.1109.XXX.123456.
  2. J. U. Duncombe, “Infrared navigation—Part I: An assessment of feasibility,” IEEE Trans. Electron Devices, vol. ED-11, no. 1, pp. 34–39, Jan. 1959, 10.1109/TED.2016.2628402.

***Basic format for reports:***

* 1. J. K. Author, “Title of report,” Abbrev. Name of Co., City of Co., Abbrev. State, Country, Rep. xxx, year.
  2. E. E. Reber, R. L. Michell, and C. J. Carter, “Oxygen absorption in the earth’s atmosphere,” Aerospace Corp., Los Angeles, CA, USA, Tech. Rep. TR-0200 (4230-46)-3, Nov. 1988.

***Basic format for reports presented at conferences (when available online):***

* 1. J.K. Author. (year, month). Title. presented at abbrev. conference title. [Type of Medium]. Available: site/path/file

1. It is recommended that footnotes be avoided (except for the unnumbered footnote with the receipt date on the first page). Instead, try to integrate the footnote information into the text. [↑](#footnote-ref-1)