INSTRUCTIONS AND STYLE GUIDELINES FOR THE PREPARATION OF FINAL YEAR LABORATORY PROJECT PAPERS : 2005 VERSION

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Abstract: The purpose of this document is to provide an easy-to-use template/style sheet to enable authors to prepare papers in the correct format and style for the final year laboratory project. This document may be downloaded from the School of Electrical and Information Engineering web site and can be used as a template. To ensure conformity of appearance it is essential that these instructions are followed. The abstract should be limited to 50-200 words, which should concisely summarise the paper.

Key words: Four to six key words in alphabetical order, separated by commas.

1. INTRODUCTION

This document is a "template" for LaTeX. An electronic version of this document is available in MS Word, LaTeX or PDF format to use as a template at http://school.eie.wits.ac.za/elen417. In LaTeX, type over the sections of this document or use the included style files with your own source document.

The length of the finished paper should not exceed 6 pages of A4 size paper. Do not change the font sizes or line spacing to squeeze more text into this page limit. Use *italics* for emphasis; do not underline.

2. PAPER FORMAT

2.1 Type sizes and type faces

If you are using a typesetting package other than LaTeXplease follow these instructions as closely as possible. The type sizes and fonts are specified in *Table 1.* Please use Times New Roman font, or other Roman font with serifs, as close as possible in appearance to Times New Roman in which these guidelines have been set.

2.2 Format

The paper size is A4 (210 mm × 297 mm). The text length is 250 mm. The left and right margins are 20 mm, the top margin is 25 mm and the bottom margin is 32 mm. Do not use headers and footers. Do not include page numbers. Apart from the title, authors, affiliation, abstract and key words, the paper is in two column format. The column width is 82 mm with a gutter between the columns of 6mm. Left- and right-justify the columns. There must be no paragraph indentation. All figures should be included electronically.

2.3 Title and subtitle

The title at the top of the first page should be capitalised in a bold, 12-point, Times New Roman font, with right and left justified text of no more than three lines, as shown above. The title should be followed by a one 12-point line spacing. To distinguish the contribution made by each group member, the project title may be followed by a colon and an appropriate subtitle. For example, for a project titled "INTELLIGENT IMPULSE GENERATORS", the first group member's subtitle could be ": HARDWARE CONSIDERATIONS" and the second could be ": SOFTWARE CONSIDERATIONS".

2.4 Author

The full name of the author should be listed as shown above. Use the author's forename, middle initial(s) and surname in bold capital and lower case letters (i.e. **John S. Smith**). Do not include titles, degrees or qualifications. The author's name and initials should be in a bold, 10-point, Times New Roman font, with right and left justified text. The author's details should be followed by one 12-point line spacing.

2.5 Affiliation

The affiliation of the author should be listed as shown above. This should be in an italic, 9-point, Times New Roman font, with right and left justified text. The affiliation should be followed by three 9-point line spacings.

2.6 Abstract

The abstract should commence with the word **Abstract:** (with a colon), in a bold (not italics), 9-point, Times New Roman font, followed by a maximum of eight lines describing the essence of the paper, in a standard (not bold or italics), 9-point, Times New Roman font, with right and left justified text, as shown above. The abstract should be followed by one 9-point line spacing.

2.7 Keywords

The keywords should commence with the words **Key words:** (with a colon), in a bold (not italics), 9-point, Times New Roman font, followed by a maximum of

two lines of keywords or phrases, separated by commas, in a standard (not bold or italics), 9-point, Times New Roman font, with right and left justified text, as shown above. The key words should be followed by three 9-point line spacings.

Table 1 : Font size and styles for laboratory project papers.

	Type Size	**Style – Times New Roman**
Title : Subtitle	12	Capitals, bold, fully justified
Author name	10	Bold, fully justified
Author affiliation	9	Italics, fully justified
Abstract	9	Fully justified
Main section heading	10	Bold, capitalised, centred
Second heading	10	Italics, fully justified
Main text	10	Fully justified No indent on 1st line
Figure captions	10	Centred below figure
Table captions	10	Centred above table
References	10	Fully justified

3. HEADINGS AND BODY

Number headings and sub-headings as shown. Number the Introduction but do not number the Acknowledgment or References.

3.1 Main (first level) headings

First level headings, starting with INTRODUCTION and ending with CONCLUSION, should be sequentially numbered (1., 2., 3., etc.) and capitalised, in a bold, 10-point, Times New Roman font, with centred text, as shown above. Each first level heading should be followed by one 10-point line spacing.

3.2 Subheadings (second and third level headings)

Second level headings: These should be sequentially numbered (e.g. 8.1, 8.2, etc.) and not capitalised, in an italics (not bold), 10-point, Times New Roman font, with left and right justified text, as shown above. Second level headings should not be indented, and each should be followed by one 10-point line spacing.

Third level headings: These should be in an italics (not bold), 10-point, Times New Roman font, not be numbered, capitalised or indented, followed by a colon and character space, and then immediately by the left and right justified body of the subheading, as shown above.

3.3 Body

The body of the paper should be in a standard (not bold or italics), 10-point, Times New Roman font, with left and right justified text, as shown above.

Paragraphs within the body of the paper should be separated by a 10-point line spacing, and the last paragraph under a heading or subheading should be followed by one 10-point line spacing.

4. UNITS

Use SI (Standard International - MKS) as a primary unit. Other units may be used as secondary units (in parenthesis) after the primary unit. One character space should be left between the numerical value and its associated unit(s).

Care should be taken to ensure that the numerical value and its associated unit(s) appear on the same line (e.g. by the use of a hard character space between the numerical value and its associated units).

Note that there is a useful package available for LaTeX called `siunits` – access the nearest CTAN archive to obtain it.

5. EQUATIONS AND REFERENCES

5.1 Equations

Number the equations consecutively with equation numbers in parentheses flush with the right margin as in *Equation 1*.

$$I_n = \sum_{q=1}^{\infty} \hat{I}_n \cos(s_q \omega t - \phi_{bq}) \tag{1}$$

Where:

$\hat{I}_n$ = peak magnitude of current [A]
s_q = the per unit slip of harmonic q
ω = the supply frequency [rad/s]
ϕ_{eq} = phase angle for harmonic q [rad]

And:

$$\lambda = \sqrt{\left| 3.\frac{z_b}{R_c} \right|} \tag{2}$$

To make your equations more compact you may use the solidus (/), the exp function or appropriate exponents. Italicise symbols for quantities and variables. Ensure that the symbols in your equation have been defined before or immediately after the equation appears. Refer to *Equation 1* rather than "eq. *Equation 1*" or "equation *Equation 1*" except at the begin-

ning of a sentence.

A 1.5-line spacing should be included above and below the equation for clarity. Where possible, indent the equation.

5.2 References

A numbered list of references should be provided at the end of the paper. The list should be arranged in the order of citation in the text. List only one reference per reference number. Number citations consecutively in square brackets [1]. The sentence punctuation follows the brackets [2]. Multiple references are each numbered within one pair of brackets [2, 3]. In sentences, refer to the reference number, as in [3]. Do not use "Ref. [3]" or "reference [3]" except at the beginning of a sentence: "Reference [3] shows . . . ". Do not use footnotes for references.

When citing references in the text, the corresponding reference number(s) in square brackets should be given e.g. [1], [1, 3, 4] or [1–4]. Only references that are actually cited in the text should be listed. References should be complete, in IEEE style, and in a 10-point, Times New Roman font.

Style for published papers: Author(s) (initials and surnames), title (in inverted commas), periodical (italics), volume and issue number, page numbers (inclusive), month and year (optional) [1, 2].

Style for conference papers: Author(s) (initials and surnames), title (in inverted commas), full conference name (italics), location, page numbers (inclusive), month and year [3].

Style for books: Author(s) (initials and surnames), title (italics), publisher, location, edition number, chapters and/or page numbers (inclusive), month and year (optional) [4].

The references at the end of this document are in the preferred referencing style.

6. FIGURES AND TABLES

Figures, illustrations, tables and graphs should be embedded within the body of the document as close as possible to the first reference to the figure or table. Where possible, these should fit within a single column width. However, if essential for the appearance and readability of the text, figures and tables may span two column widths. Alternatively, if this is not possible, figures and tables may be included at the end of the paper. Figures and tables should be sequentially numbered and a title should be included under the figure or above the table in a standard (not bold or italics), 10-point, Times New Roman font, with centred text, as shown in *Figure 1* below.

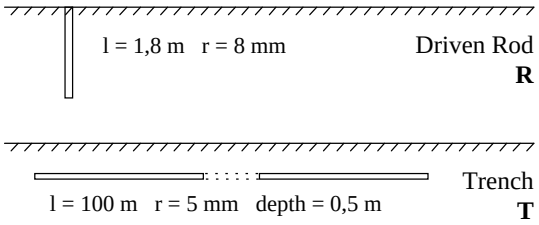

Figure 1 : Example figure for laboratory project paper.

6.1 Figures

Figures should be centred horizontally in the column. Large figures may span both columns. Figure captions should be below the figures, which should be numbered consecutively as they appear in the text. Do not abbreviate "Figure". The caption should read "Figure 1: . . . ". Ensure that the text within the figures is not too small and is legible when printed.

Figure legends and axes labels should be legible. Use words rather than symbols on figure axes. Put units in parenthesis. Do not label axes only with units. Colour printing is not available. Ensure all figures are clear when printed in greyscale. Photographs and greyscale figures should be prepared with a resolution no greater than 300 dpi. Black and white line art should be prepared with a resolution no greater than 1000 dpi. Avoid including colour photographs.

If your figure has two parts, include the labels "(a)" and "(b)" as part of the figure. Do not put captions in text boxes linked to the figures. Do not put borders around the outside of your figures. All figures should be included electronically.

6.2 Tables

Table captions should be above the tables, which should be numbered consecutively as they appear in the text. Do not abbreviate "Table." Vertical lines in the table are unnecessary. Each column should be clearly headed and appropriate symbols and units included.

7. HELPFUL HINTS

7.1 General

Use a zero before the decimal point, and a full-stop (period) for the decimal point, rather than a comma. Remember to check spelling. If your native language is not English, try to get a native English-speaking colleague to proof-read your paper.

If you need to include snippets of source code in the

paper, have a look at the package for LaTeXcalled `listings`.

7.2 Abbreviations and Acronyms

Define abbreviations and acronyms the first time they are used in the text. Do not use abbreviations in the title unless they are unavoidable. The abbreviation for "seconds" is "s," not "sec." Do not mix complete spellings and abbreviations of units: use "Wb/m^2" or "Webers per square metre," not "Webers/m^2" .

8. EDITORIAL POLICY

Do not submit a reworked version of a paper you have submitted or published elsewhere. It is the responsibility of the authors to determine whether disclosure of the material requires the prior consent of other parties, such as sponsors, and if so, to obtain it.

9. PAPER SUBMISSION

The electronic version of the final paper must be submitted in Portable Document Format (PDF), on or before the project submission deadline, using the submission system available at:

http://dept.ee.wits.ac.za/labproj/submission/

10. CONCLUSION

A conclusion may review the main points of the paper, but do not replicate the abstract as the conclusion.

ACKNOWLEDGEMENT

The preferred spelling of the word "acknowledgement" in British English is with an "e" after the "g." Use the singular heading even if you have several acknowledgements. Use this section for sponsor and financial support acknowledgments. This is also an ideal section to acknowledge the contribution made by your fellow group member.

The authors would like to acknowledge the Department of Electronic and Electrical Engineering at the University of Sheffield for the use of their paper template for the LDIA2003 symposium proceedings as well as the South African Institute of Electrical Engineers for parts of the style guidelines for publications in the SAIEE transactions. Additional thanks are extended to André van Zyl and Steve Levitt for their invaluable contributions.

REFERENCES

[1] G. H. Muller and C. Landy. "Detection of broken rotor bars, Part 1 - new theory." *SAIEE Transactions*, vol. 95, no. 1, pp. 7–18, Mar. 2003.

[2] L. Finn, R. Mulholland, and G. Gibbon. "Design and implemention of a prototype computer based rehabilitation device for the lower extremities." *SAIEE Transactions*, vol. 95, no. 1, pp. 29–32, Mar. 2003.

[3] P. Vas. "Simulation and monitoring of induction motors with motor asymmetry." In *Proceedings of the 6th International Conference on Electrical Machines*, pp. 435–439. Manchester, May 1992.

[4] A. Oppenheim and R. Shafer. *Discrete-time signal processing*, chap. 3, pp. 82–112. USA: Prentice-Hall Inc., first ed., Aug. 1989.