

# LATEX

## A FREE WORKSHOP FOR USING LATEX - AN OPEN SOURCE TYPESETTING SOFTWARE FOR ENGINEERS & MATHEMATICIANS

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**VENUE** : SYSTEM LAB, P02  
**DATE** : JUNE 3, 2010

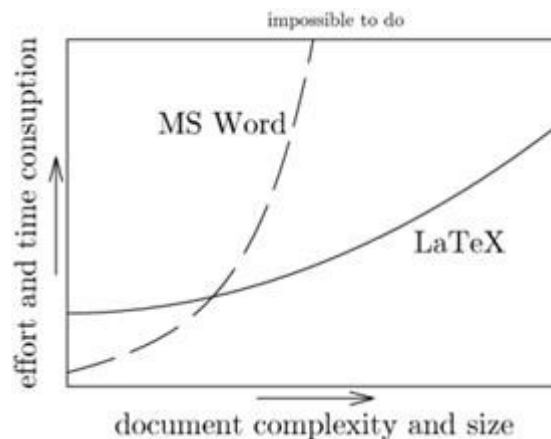
**Note:** This advertisement is **plagiarized** and modified from a spam email that I received from **Trity Technologies Sdn Bhd** <enquiry@tritytech.com>, offering the same course for RM700.

# LATEX? WHICH ONE?

**LaTeX** is a document preparation system for high-quality typesetting. It is most often used for medium-to-large technical or scientific documents but it can be used for almost any form of publishing. LaTeX is based on Donald E. Knuth's TeX typesetting language. It was first developed in 1985 by Leslie Lamport, and is now being maintained and developed by the LaTeX3 Project. LaTeX contains features for typesetting journal articles, technical reports, books and slide presentations. It provides a **convenient framework for typesetting complex mathematical formulas. Bibliographies and indexes** are generated automatically, and one of the key features of LaTeX is its capability to cross-reference nearly everything that is numbered. Best of all, it is available for free by anonymous ftp.

## WHY USE LATEX?

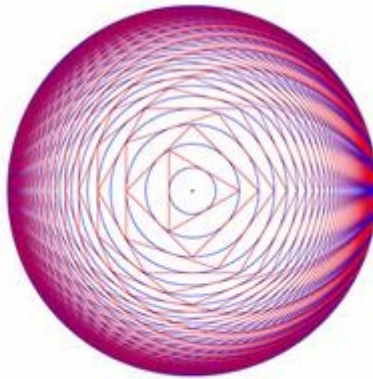
- LaTeX is a stable and robust program, having the best representation of mathematical text available, tables, cross referencing and other structures, and ability to build table of contents, index, and bibliography on the fly.
- LaTeX is a programming language with features including loops, conditionals, on the fly definition construction, the ability to send information to external files, and/or bring other external files into the document, measure text, do arithmetic operations, and much more.
- LaTeX allows parsing of form results, allowing either PDF forms or HTML forms to be used as input, as well as database information.
- Importantly, it can embed PostScript and PDFmark information within LaTeX commands, allowing dynamic graphics generation and hypertext linking as the LaTeX document is produced. Any of the other features that can be added to a PDF document can also be written into the LaTeX macro set and be customized depending on the input to the LaTeX file.



# WORTH GOING? YOU DECIDE!

$$\dot{x}_i = \sum_{j=1}^R \rho_j(v) \left( \phi_i^j(X_i) + \psi_i^j(X_i) x_{i+1} \right)$$

$$\begin{aligned} Z &= \int_{-\infty}^{\infty} dx e^{-ax^2} \\ &= \frac{1}{\sqrt{a}} \int_{-\infty}^{\infty} dy e^{-y^2} \\ &= \sqrt{\frac{1}{a}} \end{aligned} \quad (5)$$

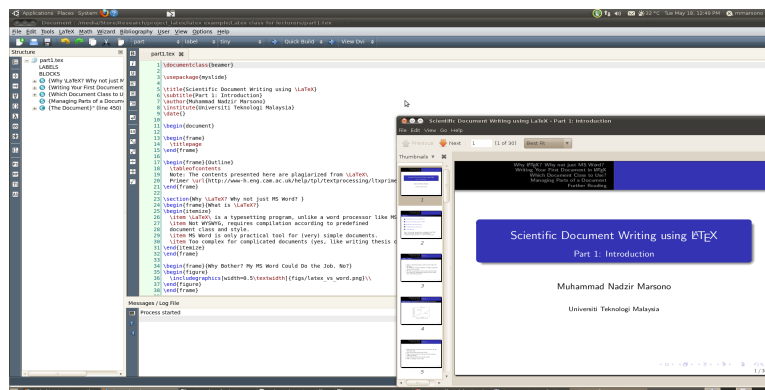


The radius of the innermost circle is 1. It is circumscribed by an equilateral triangle, which is circumscribed by a circle, and so forth. The radius of the circle as the number of figures approaches  $\infty$  is

$$\prod_{n=3}^{\infty} \sec\left(\frac{\pi}{n}\right) \approx 8.7$$

## BUT...

It is not WSYWYG. If you want WYSWYG, get LyX.



# WORKSHOP OUTLINE

## **PART 1 (08:30-10:00)**

Why LATEX?

Writing Your First Document in LATEX

## **PART 2 (10:30-12:00)**

Making Citation

Lists and Tabbing

Tabulars and Tables

Figures

## **PART 3 (14:00-15:30)**

Typesetting Mathematics

Theorems, Collorary, and Definitions

Algorithms

Listing Your Program

## **PART 4 (15:45-17:15)**

The utmthesis LATEX Document Class

Using IEEEtran class files for IEEE journals and conferences

Using Beamer class for presentation foils

## WHAT TO BRING?

All workstations in the System Lab has Latex preinstalled. You can also bring your laptop, but you must have relevant softwares installed installed first. And bring an extension wire if possible since the lab has limited wall (and floor) outlets. Since the installation will take 30 minutes or so, please do so earlier, the sooner the better. Notes are downloadable from

[http://blog.fke.utm.my/~nadzir/docs/Latex\\_class\\_for\\_lecturers.zip](http://blog.fke.utm.my/~nadzir/docs/Latex_class_for_lecturers.zip)

## WHO SHOULD ATTEND?

The primary target audiences for this course are researchers, scientists, academicians and just about anyone who become bored with the intelligence of MS Word and who wants to learn LaTeX to produce high-quality printout outputs with reasonable amount of effort.

Seats are Limited to **60 attendees only**. Please contact Dr Salinda <[salinda@fke.utm.my](mailto:salinda@fke.utm.my)> to confirm your seat.

# INSTALLATION INSTRUCTIONS ON WINDOWS

1. Download Protext from <ftp://mirror.upm.edu.my/ctan/systems/windows/protext/ProTeXt-2.2.1-102109.exe>
2. Double-click on the installation file, it will be extracted to a folder.
3. Open the folder, run Setup.exe, click next, then a pdf file will appear.
4. From the pdf file, go to page 8, at the bottom of page, click on **click here to install miktex**. Allow pdf to install miktex on your PC. Choose default setting. This will install the Latex compiler. This will be the longest. If you choose complete Miktex, expect 30 minutes.
5. Also from the pdf, go to page 14. Click on **click here to install ghostscript** to install Ghostscript. Choose default setting. This will install the font interpreter.
6. Also from the pdf page 14. Click on **click here to install ghostview**. Choose default setting and it will install gsview for viewing ps file.
7. Download Texmaker from <http://www.xmlmath.net/txmaker/download.html> Install with default setting. This will install texmaker, which is my favourite latex editor.

# INSTALLATION INSTRUCTIONS ON UBUNTU

For Ubuntu users, install using Synaptic Package Manager.

1. texmaker
2. texlive
3. texlive-bibtex-extra
4. texlive-fonts-extra
5. texlive-fonts-recommended
6. texlive-publishers
7. texlive-science
8. texlive-math-extra