

My Experience with Learning and Teaching \LaTeX

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Abstract The present article deals with the author's experience in learning \LaTeX independently and disseminating the knowledge acquired through a one week structured course taught to research scholars in a University system.

1 Learning \LaTeX

I learned \LaTeX the hard way. Actually it was a challenge to me by my colleague in the year 2001. Exploring various software and experimenting with them is my hobby. Except some academicians nobody in our city (Varanasi) knew \LaTeX and the research scholars of the Department of Mathematics used to get the \LaTeX typesetting done from far off cities. During the same time a computer magazine in India (PC Quest) published an article about \LaTeX and distributed Mik \TeX on its CD.

I started exploring \TeX/\LaTeX . I was not aware that a lot of documentation comes with \TeX/\LaTeX . So I downloaded the "The Not So Short Introduction to $\LaTeX 2e$ " by Tobias Oetiker from the internet. During the same period I explored a Linux version distributed by the PC Quest magazine. As there was some problem with the Mik \TeX given by the PC Quest magazine, I used te \TeX as available in the Linux box. I typed my experimental text in an editor, saving it with `.tex` extension, running it with `latex test.tex` and then viewing the DVI file, following the method as told in "The Not So Short Introduction to $\LaTeX 2e$ ". I was not aware of the concept of Integrated Development Environments (IDE's) and other editors like Emacs, Vi available in Linux from where one can compile the \LaTeX document and view the output without leaving the editor.

Then I came into contact with the Indian TUG (The Indian T_EX Users Group) and I joined the Indian TUG mailing list. During that period the Indian TUG was preparing to organize the International Meeting of the TUG in Trivandrum, India. As a curtain raiser they started writing L^AT_EX Tutorials and I used to download the tutorials as and when they were posted on their site. They helped me a lot. With the help of the mailing list I also learned about the Emacs editor and the AUCT_EX package.

Learning that I was experimenting with L^AT_EX a research scholar of Mathematics approached me to typeset his article as he was asked by the Editor of the Journal to submit the manuscript typeset in L^AT_EX. It took me nearly one month to typeset this 20 page article! This provided me with the necessary practical experience. From then onwards there was no looking back.

After working with L^AT_EX for 3 years and experimenting with various packages, I got an opportunity to take a class for the research scholars who were attending a short training course on using computers for research. There, for the first time, I spoke about and demonstrated L^AT_EX for about an hour.

2 First L^AT_EX Course

Then in 2005 I got an opportunity to organize a one week course on using L^AT_EX. Banaras Hindu University, with 3 Institute, 15 Faculties, 123 Departments and 3 interdisciplinary Schools, is an ideal place for propagating T_EX/L^AT_EX. The University attracts students from all over India and neighboring countries. In this course we restricted ourselves to the research scholars of Faculty of Science and Institute of Technology. We announced the “Short Training Course on Using L^AT_EX” (January, 2005) and feared that we might not receive more than 10 applications. To our astonishment we received more than 80 applications. Finally we admitted 38 candidates in the course. We gave them the T_EXLive CD (which I got after the TUG Conference), the L^AT_EX Tutorials (prepared by the Indian TUG and freely downloadable from www.tug.org.in) and Formatting Information by Peter Flynn (TUGboat, Volume 23(2002), No. 2). We adopted the method of one hour lecture and demonstration, followed by one hour hands on practice. One computer was assigned for a group of two or three students.

On the first day a general introduction about T_EX, its history, how to install, and the various editors available like Emacs, Vi, WinEdit and Winshell was given.

A plain document with a preamble was demonstrated along with the concepts of classes and style packages. During practice session students were encouraged to prepare a dummy article for publication purpose. The common errors like parenthesis in place of braces, splitting of command names like `documentclass` and how to find them was also explained. All the computers were MS Windows based and we used the WinShell IDE to edit the `tex` documents.

On the second day citing references using the simple `thebibliography` environment and the more advanced `BibTeX` and creating bibliography databases for `BibTeX` were demonstrated. After this demonstration the students, who felt that `LaTeX` is a cumbersome software to learn on the first day, showed considerable interest as using `BibTeX` allows references to be formatted in different ways without much effort.

The third day was given to demonstrate preparation of tables etc. The packages `rotating` (using this package one can turn the table sideways — useful for wider tables), `longtable` (this is useful if the table spans more than one page), `colortab` (this is for shading the cells of tables with various colors – a fancy thing useful in slides etc. for highlighting the data), `booktabs` (on using this package the tables look more professional and beautiful), were also demonstrated.

Typesetting mathematics was demonstrated on fourth day. Though we aimed this course for the research scholars of the Department of Mathematics, unfortunately none from the department joined the course. The attendees were mainly from the School of Biotechnology, Departments of Botany, Chemistry, Geology, Geophysics, Physics, Zoology, Applied Mathematics, Applied Physics, Ceramics and Electrical Engineering.

On the fifth day we demonstrated the `minipage` environment, various boxed matters, inclusion of graphics and how to define macros for individual use. With this the course came to an end and the students were asked to prepare for a short examination on the next day.

During the first day's lecture the features of the exam class of Jason Alexander were explained to the students.¹ They were also cautioned that in order to show the power of this package a multiple choice question (MCQ) type examination would be conducted on the last day and the paper would be typeset using this package. So on the sixth day an examination for 25 marks comprising 25 ques-

1. There are two exam classes. We are discussing the exam class in the `examdesign` folder on CTAN.

tions (Multiple choice – 10; True/False – 5; Fill in the blanks – 5 and Matching – 5) was conducted. The maximum and minimum marks obtained by the students are 20 and 11 respectively. After the examination was over correct answers to the questions were explained. Some beautiful figures drawn using MetaPost and PSTricks (both taken from the internet) were also shown and the features of various packages available to prepare slideshows like TeXpower and pdfslide were also discussed.

3 Further Courses

Seeing the success of the course and also to teach those research scholars who could not be accommodated in the first training course we announced another course within a short span of two months (March, 2005). Again we received overwhelming response and keeping in view our past experience we admitted only 28 students this time. There was a small change. This time we distributed ProTeXt (a version of MikTeX). The IDE was also different. We used T_EXnicCenter instead of WinShell. More or less the same course content was adopted. In order to save time and to deliver more content this time we used the screen version of the L^AT_EX Tutorials. This time we also distributed the BibDB software of Eyal Doron with which Bibliographic databases can be easily created and maintained. As usual a short examination was conducted and the highest mark obtained was 22 and the lowest was 11.

After a gap of 6 months and by request of some research scholars from the Department of Mathematics another course² was organised in September, 2005. This time 18 research scholars joined and completed the course. The method followed was more or less same as the second course. In this course the packages mhchem (useful for typesetting chemical equations) and biocon (useful for typesetting biological names) were also demonstrated.

2. The slides for this course are available in PDF format from <http://dw.tug.org/pracjourn/2006-2/venugopal/TeXIntroLect2.pdf>

4 Other Endeavours

Introductory lectures about \LaTeX were also given in the Orientation Courses conducted for Lecturers in the Academic Staff College of our University. The participants were very much excited by the lecture demonstrations. There is a need to conduct separate course(s) for the teachers.

With these endeavours we could initiate some 84 students into the use of \LaTeX . We are not sure whether or not all who attended the course are using \LaTeX on a daily basis. If at least 10% of them use it then also our mission is successful. Our experience is that in every batch there were at least four to five students who took \LaTeX seriously. We covered only three Faculties to date. The Arts and Social Sciences faculties are not yet touched.

5 Suggestions

Proper guidance and books will certainly help interested persons learn \LaTeX quickly. Both the books “ \LaTeX Tutorials” and “The Not So Short Introduction to $\text{\LaTeX}2\epsilon$ ” lack information on IDEs and editors. “Formatting Information” has a good deal of information on subjects like IDEs and Bibliographic data managers and is useful for a starter. But to have a good command of \LaTeX help of all three books mentioned above is needed. For Microsoft Windows users MikTeX or ProTeXt are better suited as they have the facility of installing packages on demand.

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