

Report on the Workshop on \LaTeX and Free Mathematical Software

VENUE: BHASKARACHARYA PRATISHTHANA, PUNE, INDIA
9th-14th July, 2003

The Workshop on \LaTeX and Free Mathematical Software was organised by Bhaskaracharya Pratishthana, Pune, India and it was mainly sponsored by International TUG (\TeX Users Group), with a generous grant of USD 2100 (Rs. 99, 036). The activity was a joint activity with Dept. of Mathematics, University of Pune and was partially supported by the DSA programme of UGC in the department.

The stress of the workshop was on the software \LaTeX for mathematical type-setting. In addition a number of free mathematical software were introduced to the participants. The workshop was organised for the participants from educational field mainly from Universities and Colleges having some knowledge of \TeX and also having background in mathematics.

This is the first workshop of this kind organised in India which dealt with \TeX topics as well as free Mathematical software based on linux. The participants were very enthusiastic and many of the participants worked on late nights to practise and assimilate various topics from \LaTeX and Mathematical Software.

• Organising committee

Chairman: C. S. Inamdar, Bhaskaracharya Pratishthana.

Co-ordinator: S. A. Katre, Dept. of Math., University of Pune.

Co-ordinator: Manjusha Joshi, Bhaskaracharya Pratishthana.

Member: Amitabh Trehan, M.G.A.H.V., Delhi.

• Speakers and Topics

Speaker	Topics
1. Mr. Amitabh Trehan (IIT, Delhi)	Linux, Pdftscreen, Devnag, \LaTeX topics: Indexing, Table of Contents
2. Dr. S. C. Phatak (IITR, Bhubaneswar)	GNU PLOT, xfig
3. Dr. Surendran (Pune)	\TeX Macs & WIMS
4. Dr. S. A. Katre (Univ. of Pune, Pune)	\TeX Utilities
5. Ms. Manjusha S. Joshi (Bhaskaracharya Pratishthana, Pune)	PSTricks, POVray
6. Dr. Ajit Kumar (St. Xavier's College, Mumbai)	References in \LaTeX
7. Dr. A. V. Jayathan (TIFR, Mumbai)	PSfrag, DCPic, MuPAD
8. Dr. M. S. Bakre (Univ. of Mumbai, Mumbai)	Macaulay 2
9. Mr. Sumit Bharadwaj (IIT, Delhi)	Scilab, Euler, Octave, software installation
10. Mr. Niyam Bhushan (Delhi)	MathML, Prosper, Bib \TeX
	Linux, Publishing workflows, Typography, Image Enhancement and Conversion, Plone

• Time Table

On 8th July, for some participants having a limited background in \TeX , a lecture by Amitabh Trehan to introduce the basic concepts in \TeX was arranged. There were also practice sessions based on exercises in \LaTeX prepared by S. A. Katre and Manjusha Joshi.

Time Table

Monday, 9th June 2003

9.15 to 9.30	Inaguration (C.S. Inamdar, Niyam Bhushan)
9.30 to 10.30	Niyam Bhushan (Seven steps for migration to Linux)
10.30 to 11.30	Amitabh Trehan (Working on Linux) Tea
12.00 to 1.00	A. V. Jayanthan (Macaulay 2) Lunch
2.30 to 4.00	Amitabh Trehan (Linux) Cold-Drink
4.15 to 5.45	A. V. Jayanthan (Macaulay 2) Tea
6.00 to 7.30	Practice Sessions Dinner

Tuesday, 10th June, 2003

9.15-10.00	Linux Practical
10.00-11.00	S. C. Phatak (GNUPLOT) Tea
11.15-12.05	Niyam Bhushan (Publishing Workflows)
12.10-1.00	Ajit Kumar (Mupad) Lunch
2.00 - 3.00	A. V. Jayanthan (Macaulay 2)
3.00 - 4.00	Macaulay 2 Practical Cold Drink
4.15 - 5.15	Mupad Practical
5.15 - 6.15	Ajit Kumar (PSfrag and DCPic) Tea
6.30 - 7.30	Practice Sessions Dinner

Wednesday, 11th June, 2003

9.15-10.00	Mupad Practical
10.00-11.00	Macaulay 2 Practical Tea
11.15-12.05	PSfrag & DCPic Practical
12.10-1.00	Ajit Kumar (Mupad) Lunch
2.00 - 3.00	Mupad Practical
3.00 - 4.00	Surendran (Texmacs & WIMS) Cold Drink
4.15 - 5.15	Sumit Bhardwaj (Putting Math on the Web: MathML)
5.15 - 6.15	Bakre (Euler) Tea
6.30 - 7.30	GNUPLOT Practical Dinner

Thursday, 12th June, 2003

9.15-10.00	Bakre (Euler)
10.00-11.00	Amitabh Trehan, Sumit Bhardwaj, Manjusha Joshi (Topics in \LaTeX - Indexing, Bib \TeX , Table of Contents, References, etc.)
	Tea
11.15-12.05	Practical on \LaTeX
12.10-1.00	S. A. Katre (Utilities with \LaTeX))
	Lunch
2.00 - 3.00	Manjusha Joshi (PSTricks)
3.00 - 4.00	Practical - PSTricks
	Cold Drink
4.15 - 5.15	Phatak (Xfig with Practical))
5.15 - 6.15	Niyam Bhushan (Image enhancement & conversion)
6.30 - 7.30	Practice Session
	Dinner

Friday, 13th June, 2003

9.15-10.15	Bakre(Scilab & Octave)
10.00-11.00	Practical on Scilab & Octave
	Tea
11.15-12.05	Practical on \LaTeX
12.10-1.00	Sumit & Amitabh (Presentation Packages: Prosper & Pdfscreen)
	Lunch
2.30 - 3.30	Amitabh Trehan (Devnag)
3.45 - 4.45	Manjusha Joshi (POVRay)
	Cold Drink
5.15 - 6.15	M. S. Bakre (gcc & Configure)
5.45 - 6.45	Niyam Bhusahn (Typography)
	Tea
6.45 - 7.30	Cultural Program
	Dinner

Saturday, 14th June, 2003

9.15-10.15	Practical on Pdfscreen/Prosper
10.00-11.10	Practical on Devnag
	Tea
11.30-12.30	Amitabh Trehan (Installation of \TeX)
12.30-1.30	Amitabh Trehan (Installation of free Maths Software)
	Lunch
3.00 - 4.00	Niyam Bhushan (Plone)
4.00 - 4.30	Valedictory Function (C. S.Inamdar, S. A. Katre)
	Dinner

- **Software provided**

Registered participants were given 2 C.D.s*, notes on various topics discussed in the Workshop, file with register of 100 pages, pen, a few blank papers, badge and **L^AT_EX Tutorials - a primer to L^AT_EX 2_ε prepared by Indian T_EX Users Group (Editor : E. Krishnan), 2002.**

* C.D.s containing the following software was given to the participants.

C.D. No. 1. T_EXLive version 7. (This also contains devnag, PSTricks, PDF-screen, PSfrag, PSplot etc.)

C.D. No. 2. PovRay, MuPAD (light version), GNUPLOT (for windows),Macaulay 2, CoCoA, Maxima, T_EXMacS, WIM Server, Scilab, Euler, L^AT_EX suite, MathML, TeXnicCenter.

Some software discussed in the workshop is already available in Red Hat Linux CD such as xfig, gcc, GNUPLOT, Octave.

- **Notes distributed**

Notes on Installation of Software given in C.D. such as Macaulay 2, PSFrag and DCpic, T_EXutilities, Assignments on T_EX, Gnuplot, PDFscreen, Macaulay 2, Mupad, Notes of Mupad, Notes of Macaulay 2, Notes on Devnag, Introductory material on L^AT_EX etc.

Most of the Mathematical Software given in the CD were discussed during the workshop.

While MuPAD is a general purpose mathematical software, Macaulay 2 and CoCoA are special software for Algebra.

GNUPLOT and xfig are useful for drawing figures. The insertion of the figures drawn using these software in L^AT_EX document was discussed during the workshop. T_EXMacS is a front end which gives L^AT_EX output for some of the math. software like Maxima, PovRay, GNUPLOT, SciLab, etc. Browsing by subject and education level is possible through WIM Server for the softwares MuPAD, Maxima, Macaulay 2, PARI/GP, GAP, Yakas, Octave, etc. in which output of the software is T_EX formatted text.

A mathematical document prepared using L^AT_EX can be put on the net using utilities like itex2mml by converting it to a MathML file.

- **Information of Participants**

Participants were from 18 institutes/Universities all over India. There were in all 41 participants out of which 26 were outstation and 15 were local. There were in all 9 lady participants. The participants outside Maharashtra State came from Goa, Delhi, Chennai, Chandigarh, Meerat, Ahmedabad, Daman, Dharawad, Patan, Jhasi, Darjeeling, Agra, Patiala. Participants within Maharashtra came from Pune, Mumbai, Aurangabad, Sangamner, Verdha, Shegaon. The local participants comprised of past students (now teachers in various colleges in Pune) and current students of the Dept. of Mathematics, Univ. of Pune.

List of Participants:

Outstation Participants:

1. Sartaj Ul Hasan, I.I.T. Bombay, Powai, Mumbai.
2. Mr. Malay Kumar Ghosh, North Bengal University, Darjeeling.
3. Mr. Partha Sarathi Debnath, North Bengal University, Darjeeling.
4. Dr. Sanjeev Kumar, Institute of Basic Science, Agra.
5. Mr. C. S. Salimath, Karnatak University, Dharwad.
6. Sanjay Choudhary, Institute of Basic Science, Khandari-Agra.
7. Dr. Manjusha Gandhi, Shri Sant Gajanan Maharaj College of Engineering, Shegaon.
8. Mr. Narahari A. Patil, Shri Sant Gajanan Maharaj College of Engineering, Shegaon.
9. Mr. Rupen Pratap Singh, Ch. Charan Singh University, Meerut.
10. Dr. A. K. Desai, Gujarat University, Ahmedabad.
11. Mr. Udayan Prajapati, St. Xaviers College, Ahmedabad.
12. Mr. Habeeb Basha Syed, I.I.T. Bombay, Powai, Mumbai.
13. Mr. Arunkumar Patil, I.I.T. Bombay Powai, Mumbai.
14. Mr. Subhendu Bhanti, North Gujarat University, Patan.
15. Ms. Anju Rani Gupta, Bundelkhand University, Jhansi, 284 128.
16. Dr. Avanish Kumar, Bundelkhand University, Jhansi, 284 128.
17. Mr. Israr Ahmad, Jamiya Millia Islamiya, New Delhi.
18. Dr. Y. S. Valaulikar, Goa University, Goa.
19. Dr. Sushil Kumar Tomar, Panjab University, Chandigarh.
20. Mr. Rajesh Agarkar, Mahatma Gandhi Antarrashtriya Hindi Vishwavidyalaya, Wardha.
21. Ms. Hema Godbole, Mahatma Gandhi Antarrashtriya Hindi Vishwavidyalaya, Wardha.
22. Dr. H. S. Kasana, Thapar Institute of Engineering and Technology, Patiala.
23. Dr. S. K. Panchal, S.N. Arts D.J.M. Commerce and B.N.S. Science College, Sangamner, Dist. A.nagar 422 605.
24. Shibsankar Karmakar, North Bengal University, Darjeeling, 734430.
25. Malay Kumar Ghosh, North Bengal University, Darjeeling, 734430.
26. Dr. S. K. Nimbhorkar, Dr. B.A. Marathwada University, Aurangabad-431 004.

Local Participants:

1. Mr. Madhusudan Tandale, V.I.I.T., Pune.
2. Ms. Rupali Deshpande, V.I.T., Pune.
3. Mr. Pratul Gadagkar, University of Pune, Pune.
4. Dr. Radha Bhate, Dept. of Bio-Technology, University of Pune, Pune.

5. Mr. A. S. Nanajkar, Fergusson College, Pune.
6. Mr. D. N. Sheth, Sir Parashurambhau College, Pune.
7. Ms. Fathia Mohammed Al Samman, Pune University, Pune.
8. Mr. Rajanish Malekar, National Defence Academy, Pune.
9. Ms. Anuradha Gadre, University of Pune, Pune.
10. Mr. C. S. Nimkar, N. Wadia College, Pune.
11. Mr. Pramod Shinde, N. Wadia College, Pune.
12. Ms. Sunita Patil, University of Pune, Pune.
13. Ms. Nita Kankane, M.I.T., Pune.
14. Mr. Ashok Bhavale, Sinhgad College of Science, Pune.
15. Mr. Hemant R. Pawar, National Defence Academy, Pune.

- **Technical arrangements done for the workshop**

Total 20 Computers were arranged for practicals, LCD projector was arranged for lectures and demonstrations etc.

One classroom was temporarily converted as additional Computer lab, in which 14 computers were arranged. 6 computers were arranged for practical work in the main Computer lab. Other than these computers, 3 computers were available for speakers for their work regarding the Workshop, internet and mails. 9 computers were on LAN and were also connected to a laser printer. Printing facility was provided to the speakers.

- **Parallel activities**

PLUG - linux stall: In Pune city, a local group called as PUNE LINUX USER GROUP helped us for installation of linux and other softwares on the temporarily arranged machines. They also put their stall at the institute, where they made linux CDs available at nominal charges. About 20 participants took benefit of this arrangement.

Springer Book Exhibition: Springer, leading publishers of scientific books, took benefit of the opportunity of the workshop. They exhibited books on \LaTeX , Typography, Mupad and several other topics on the last 5 days of the workshop.

- **Certificate of Participation**

The participants were given a certificate of participation with a logo of \TeX Lion.

- **Utilization of the TUG Grant**

The amount received from **TUG** was utilised for the items mentioned below:

Expenditure for \LaTeX Workshop from the TUG grants

1. Food Expenses	28,000.00 Rs.
2. Stationary Charges (C.D., Book, Other)	14,000.00 Rs.
3. Rent for 10 Computers and setting the Computer Lab	20,000.00 Rs.
4. Travel expenses for speakers	16,250.00 Rs.
5. Honorarium to speakers	11,750.00 Rs.
6. Secretarial Expenses	5,000.00 Rs.
7. Contegency Expenses	4,000.00 Rs.

99,000.00 Rs.
(USD 2100.)

The remaining expenses for accommodation, rent for LCD projector, D. A. for speakers, networking expenses, preconference printing, postage and other contingent expenses were covered through registration fee, accommodation charges, the support from Dept. of Mathematics, University of Pune and the funds of the Bhaskaracharya Pratishthana.

- **Acknowledgements**

Organising committee is grateful to the international T_EX Users Group for the timely and generous grant of USD 2100 without which it would not have been possible to hold the workshop at the National Level. Some information regarding possible topics/books for the workshop especially related to L^AT_EX was available from the mailing lists tugindia@tug.org and indic-dev@tug.org .

We are thankful to eminent scholars Mr. C. V. Radhakrishnan (Trivandrum), former secretary, TUG-India and Dr. E. Krishnan (Trivandrum), Chairman, free software foundation, India who encouraged to organise the workshop and helped in the initial stages. Dr. Kaveh Bazargan (Trivandrum & U.K.), member, TUG-India board, also helped in various aspects of the workshop.

We are thankful to the Prof. A. S. Kolaskar, Vice-Chancellor, Univ. of Pune and Prof. N. S. Bhave, Head, Dept. of Mathematics, Univ. of Pune, to consider the workshop as a joint activity with the Department of Math., Univ. of Pune. The support from PLUG, Pune regarding linux installation requires a special mention. We thank Mr. Bhamburkar who made available 7 diskless machines for the workshop in the nick of the time and without any charges. We also thank Mr. Sudhanwa Joglekar, Dr. Surendran, Dr. Gangawane who helped in the computer related matters.

We thank the office staff of BP: Ms. Veena Kulkarni, Mr. S. R. Gosavi, Mr. Sunil Sawant and also the Trustees of Bhaskaracharya Pratishthana for all the help they extended for the organisation of the workshop.