Under the aegis of Vijayam Educational Trust
CATALYST COLLEGE
(A Unit of CIMAGE Group of Institutions)
Institution approved by Education Department, Government of Bihar, Affiliated to Patliputra University, Patna

Ref: CC/WRSP-NOT/19/16/21

Date: 20-July-2019

NOTICE

This is to inform all the Students that a workshop on Research tool of LaTeX by IIT -B will be organized on 9.8.2019 from 9:30 AM to 5:30 PM in the auditorium of Catalyst College.

The workshop is completely free, and no money will be charged for the Training or Certification.

Interested students are instructed to meet the Activity In-Charge / Class Coordinator for more details and their registration.

By the order of

Principal

Principal
CATALYST COLLEGE
Plot No.- C-16(P) Patliputra Industrial Area
Patliputra, Patna-13

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Patliputra, Patna- 800013
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Date:09-08-2019

Workshop Title

Research Tool LaTeX: Mastering Document Preparation for Academics and Professionals

Presented by IIT Bombay

Number of Students Participated: 56

Objective:

This workshop aims to introduce participants to LaTeX, a high-quality typesetting system widely used for producing technical and scientific documentation. LaTeX is the standard tool for writing research papers, articles, books, and academic documents, especially in fields like mathematics, physics, engineering, computer science, and economics. The workshop, led by experts from IIT Bombay, will cover the essentials of LaTeX, from the basic document structure to advanced techniques for formatting, referencing, and creating complex mathematical expressions.

Participants will leave with the ability to use LaTeX for preparing professional-grade research papers, articles, and thesis documents, and will learn to integrate LaTeX into their academic workflows.

Model 1. Welcome & Introduction to LaTeX

- Welcome Remarks: Introduction to the workshop, its objectives, and an overview of LaTeX as a tool for academic and professional writing.
- About the Facilitators: A brief introduction to the speakers and their experience with LaTeX in the academic and publishing fields.
- Why LaTeX?

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- Overview of LaTeX's advantages: High-quality typesetting, mathematical notation, bibliography management, and cross-referencing. ○ LaTeX vs. traditional word processors: Why LaTeX is the tool of choice for academics and researchers.

Model 2. Setting Up LaTeX Environment

- Installing LaTeX:
  - Step-by-step guide on how to install LaTeX distributions on different operating systems (Windows, macOS, Linux).
  - Recommended LaTeX editors: Overleaf (cloud-based) and TeXShop, TeXworks (desktop-based).
- Introduction to Overleaf:
  - Overview of Overleaf, an online LaTeX editor that simplifies collaboration and document sharing.
  - Demonstration of the Overleaf interface and basic usage.
- Your First LaTeX Document:
  - Writing a simple LaTeX document: Basic structure of a LaTeX file, including document class, title, sections, and text formatting.
  - Running the code to compile a LaTeX document into a PDF.

Model 3. Understanding LaTeX Syntax and Basic Document Structure

- Document Structure:
  - The anatomy of a LaTeX document: Document class (article, report, book), preamble, document body.
  - Creating sections, subsections, and paragraphs.
- Text Formatting:
  - Basic text formatting: bold, italics, underline, font size, and color.
  - Lists: unordered (bullets) and ordered (numbered) lists.

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- Mathematical Expressions:
  - Introduction to inline and display math mode. ○ Writing mathematical symbols and equations (fractions, square roots, summations, integrals, Greek letters).
  - Creating numbered equations with equation and align environments.
- Basic Tables and Figures:
  - Creating simple tables: alignment, borders, headers.
  - Inserting images and figures: Using the graphicx package to include external images.

Model 4. Working with Citations and Bibliographies Creating

Citations and Bibliographies:

- Introduction to BibTeX, the bibliography management tool used in LaTeX.
  - Creating a .bib file to store references.
- Using the \cite{} command to cite references in your document.

- Referencing Styles:
  - How to select and use citation styles (e.g., APA, IEEE, Chicago).
  - Automatic bibliography generation using the bibliography style command.
- Managing Multiple Citations:
  - How to cite multiple references and create lists of references in the document.
  - Sorting and grouping citations in the bibliography.
- Using Overleaf for Collaboration:
  - How to collaborate on research papers in real-time with others using Overleaf's sharing features.

Model 5. Advanced LaTeX Features for Research Documents

- Advanced Mathematical Typesetting:

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- Creating multi-line equations, matrices, and arrays using LaTeX's equation and align environments.

  Writing complex mathematical formulas with subscript, superscript, summation symbols, and derivatives.

- Creating and Styling Lists:
  - Customizing bullet and numbered lists, nested lists, and to-do lists. ○ Using enumerate, itemize, and description environments for different types of lists.
- Formatting Long Documents (Theses, Reports):
  - Organizing large documents with chapters, sections, and subsections. ○ Table of contents: Automating table of contents creation using \tableofcontents.
  - Adding indexes, glossaries, and acronyms in LaTeX documents.
- Handling Cross-Referencing and Hyperlinks:
  - How to create internal and external links with hyperref package. ○ Cross-referencing sections, figures, tables, equations, and bibliographies.
  - Referencing and labeling equations, figures, and tables in large research papers.

Model 6. Customizing LaTeX Templates for Research

- Using Templates:
  - Introduction to available LaTeX templates for papers, reports, CVs, and books. ○ How to download and use templates for conferences, journals, and research papers.
- Customizing Layout and Style:
  - Adjusting margins, line spacing, font styles, and paragraph formatting.
  - Modifying page numbering, headers, footers, and footnotes.
- Creating Custom Commands:

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- Writing custom LaTeX commands to simplify document formatting and reduce repetition.

  Useful for documents with complex mathematical notation, algorithms, and symbols.

Key Takeaways:

- Master LaTeX Basics: Ability to create professional-quality academic documents, including papers, reports, and books.
- Mathematical Typesetting: Proficiency in writing complex formulas, equations, and algorithms.
- Bibliography Management: Efficient handling of citations and references using BibTeX and LaTeX's bibliography features.
- Document Customization: How to format, structure, and style research documents according to academic and publisher standards.
- Collaboration with Overleaf: Real-time collaboration and version control for teambased academic writing.

Research tool of LaTeX by IIT -B

Date:-09/08/2019

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Workshop on R Programming by IIT Bombay

Date:-09/08/2019

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Registration

For Workshops/Seminars/Conferences during Academic Year 2019-2020

Research tool of LaTeX by IIT -B

(09 August 2019)

S. No.	ID	Name of the student	Student's Signature
1	445-6983	Aabha Kumari	Aabha.
2	445-6965	Aarti Kumari	Aarti kumari
3	445-6997	Abhishek Kumar	Abhishek
4	~~445-7018~~	~~Abhishek Paswan~~	~~Abhishek Paswan~~
5	445-6838	Amar Kumar Jaiswal	Amar Kr.
6	~~445-7248~~	Gulshan Kumar	Gulshan kr
7	445-6901	Himanshu Raj	Himanshu
8	445-6925	Jyoti Kumari	Jyoti kri.
9	~~445-7453~~	~~Kalpana Kumari~~	~~Kalpana Kumari~~
10	445-7404	Kalyan Kumar	Kalyan
11	~~445-7003~~	~~Manish Ranjan~~	M. Ranjan.
12	~~445-7021~~	~~Md Imran~~	Md Imran
13	445-6921	Muskan Malhotra	M. Malhotra
14	445-6999	Praveen Kumar	Praveen kr.
15	~~445-6930~~	Priyanshu Kumari	P. Kri
16	445-7037	Rajan Raj	Rajan Ra
17	445-7386	Rajesh Kumar	Rajesh.
18	445-6961	Rajiv Kishor Singh	R. K. Singh
19	445-6868	Rajnikant Kumar	Rajnikant kr
20	445-6978	Rajshi Shah	R. Shah.
21	445-6957	Ravi Ranjan Kumar	Ravi Ranjan
22	445-7025	Rohit Kumar	R. Kr.
23	445-7351	Sanju Kumari	Sanju kri
24	445-6995	Subham Kumar	S. Kr.
25	445 7005	Sunil Kumar	Sunil
26	445-7291	Supriya Kumari	Supriya kri
27	445-6989	Surabhi Kumari	Surabhi kri
28	445-6967	Swarnika Kumari	Swarnika
29	445-7666	Vikram Kumar	Vikram kr
30	445-7009	Divya Kumari	Divya Kumari
31	445-6981	Aditya Kumar Sahni	Aditya.
32	445-6762	Akshay Verma	Akshay Verma

33	445-6915	Aman Kumar Gupta	Aman Kuma
34	445-7272	Amit Kumar Thakur	Amit Kr Thakur
35	445-7443	Ashutosh Kumar	Ashutosh Kuma
36	445-6725	Bipul Kumar	Bipul Kr.
37	445-6767	Gautam Kumar Solanki	Gautam
38	445-6951	Golu Kumar	Golu kuma
39	445-6928	Harsh Raj	Harsh
40	445-6937	Kamya Rani	Kamya Rani
41	445-6939	Karishma Kumari	K. Kari
42	445-6750	Komal Kumari	Komal kuma
43	445-7390	Krishn Mohan Kumar	K. M. Kumar.
44	445-7250	Manish Kumar	manish.
45	445-6977	Nur Alam	Nur Alam
46	445-6862	Prakash Raj	Prakan Raj
47	445-6853	Prashant Kumar	P. Kumar
48	445-6974	Prince Kumar Singh	Prince kuma
49	445-6730	Raghav Raman Choudhary	R. R. Choudhary.
50	445-6747	Ranjeet Kumar Yadav	Ranjeet kr
51	445-6733	Raunak Rani	Raunak Rani
52	445-6854	Sanjeev Kumar	Sanjeev kr
53	445-7423	Satish Kumar	Satish.
54	445-6883	Saurav Kumar	Saurav kr
55	445-6761	Shankar Kumar	S. Kr.
56	445-6993	Shiv Jee Kumar Yadav	Shiv

(Sign.)

Course Coordinator