Course – **Certificate Course Hands on training on Technical Paper writing using LATEX**

Course code : **CMA-LTX** Duration : **30 Hours**

About the Course

LATEX is a document typesetting system that is used to produce high quality scientific documents such as articles, books, dissertations, technical reports, etc. It makes the author to organize the document in a logical way, which often has the beneficial side effect of producing exposition that more organized, clearer, and more coherent. It allows the author to focus on content rather than layout during the writing process.

This course is offered to BSc/MSc students as a hands on training (practical) of 30 hours duration to prepare LATEX documents and project reports through hybrid mode of teaching (both online and offline).

Course Objectives

- Enable the students to handle different types of Scientific documents.
- Provide hands on training for the preparation of different types of LATEX document.
- Organize documents into different sections, subsections, write complex mathematical expressions and formulas.
- Help the students to learn a means of self-employment and income generation

Course outcome

By successfully completing the course, students will be able to :

- Handle different types of LATEX documents, and organize documents into different sections, subsections, etc.
- Formatting pages (margins, header, footer, orientation) and formating texts.
- Include tables and images in a scientific document.
- Cross-referencing, bibliography, and Indexing
- Create research articles, project reports, thesis and seminar presentation slides using Beamer class.

Course Syllabus

Module-1 : Introduction and formatting the pages in LATEX (6 Hours)

This topic introduces the learner to LATEX programming, its installation, and different IDEs. The learner creates the first document using LATEX organizes content into sections using article and book class of LATEX . Also in this module, the session starts by reviewing different paper sizes, examines packages, formats the page by setting margins, customizing

header and footer, changing the page orientation, dividing the document into multiple columns. The topic ends with reading different types of error messages.

Module-2 : Formatting Content and typesetting of Mathematical equations (9 Hours)

This module concentrates on formatting text (styles, size, alignment), adding colours to text and entire page, and adding bullets and numbered items. It concludes by explaining the process of writing complex mathematical expressions.

Module-3 : Tables and Images (7 Hours)

The Module starts by creating basic tables, adding simple and dashed borders, merging rows and columns, and handling situations where a table exceeds the size of a page. The sessions then continue to add an image, explore different properties like rotate, scale, etc..

Module-4 : Referencing, Indexing and preparation of slides (8 Hours)

In this topic, the learner learns to add cross-referencing (refer to sections, table, images), add bibliography (references), and create back index. Introduction to creating slides, adding frames, dividing the slide into multiple columns, adding different blocks, etc..

References

- LATEX Tutorials : A PREMIER by Indian TEX Users Group, Edited by E.. Krishnan, 2003.
- LATEX , a Document Preparation System by Leslie Lamport (second edition, Addison Wesley, 1994).
- The TeX book by Donald Knuth (Addison-Wesley, 1984).
- A Beginner's Book of TeX by Raymond Seroul and Silvio Levy, (Springer Verlag, 1992).
- The Not So Short Introduction to LATEX 2ε by by Tobias Oetiker Hubert Partl, Irene Hyna and Elisabeth Schlegl, 2015.
- The LATEX Companion, 2nd Edition by Frank Mittelbach and Michel Goossens (Addison- Wesley, 2004).
- Math into LATEX : An Introduction to LATEX and AmS-LaTeX by George Gratzer (third edition Birkhauser and Springer Verlag, 2000).