

# Course: Latex

**Course Code:** Latex

**Session:** 2016-17

**Duration:** 4 months

**Assessment procedures:** Proctored certification Exam (100%)

**Curriculum of the Course:**

- 1 Basic Level LaTeX
- 2 Intermediate Level
- 3 Advanced Level

## Basic Level LaTeX

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1. LaTeX on Windows using TeXworks
  - Installing MikTeX on Windows
  - Writing basic LaTeX document using TeXworks editor
  - Configuring MikTeX to download missing packages
2. Report Writing
  - report style having chapter, section and subsection
  - article style having section, subsection and subsubsection
  - Automatic generation of table of contents
  - toc file to store the information that goes into the table of contents
  - Automatic numbering of section numbers
  - Appendix; its appearance in report and article style
  - exiting from LaTeX when a compilation error occurs
3. Letter Writing
  - Letter document class
  - From address
  - Automatic generation and format of date
  - Starting a new line with double slash
  - To address
  - Starting a new paragraph with a blank line
  - itemize environment for bullet points
  - enumerate environment for numbered points
  - Closing statement
  - Signature
  - Carbon copy

#### 4. Mathematical Typesetting

- \$ sign to begin and end mathematical expressions
- Creating alpha, beta, gamma and delta
- Space being used as a terminator of symbols
- Creating spaces in mathematical formulae
- Difference in font of text and formula
- Difference in the minus sign in text and in formula
- frac command to create fractions
- Subscripts and superscripts
- Use of braces { } to demarcate arguments
- Not equal to, greater than or equal to, less than or equal to, much less than
- Right arrow, left arrow, left right arrow, up arrow
- Integral sign, limits of an integral
- Matrices of different rows and columns

#### 5. Equations

- amsmath package and align and align\* environments to create equations
- Matrix differential equation
- aligning two equations using &, with and without intervening text
- Automatic numbering of equations using align
- Labeling equations with the label command
- Cross referencing equation numbers through the ref command
- Inserting text between two aligned equations through the intertext command
- Automatic generation of equation numbers at run time allows insertion and removal of an equation from a set of equations
- Labeling sections and subsections for easy and fool-proof cross referencing
- Breaking an equation into more than one line
- Suppression of equation numbers in the align environment using the nonumber command
- Use of backslash (\) to make braces appear as braces
- left[, right] and also left[. (i.e. left bracking fullstop)
- Blank lines in the align environment is not permissible

#### 6. Numbering Equations

- amsmath
- numbering equations
- align environment
- nonumber command

- labelling equations with the label command
  - cross referencing equations with the ref command
  - case dependence of variables in label command
  - taking help from stackexchange
  - learning from ltx-primer.pdf
  - typing if-else with cases command
7. Tables and Figures
    - Creating tables and figures in Latex
  8. Beamer
    - Creating a presentation using a Beamer
  9. Bibliography
    - Creating Bibliography in Latex

## Intermediate Level

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1. Feedback diagram with Maths
  - Open the .fig file saved in the feedback control tutorial
  - Put  $G(z) = \frac{z}{z-1}$  in the second block diagram
  - Choose the special flag
  - Save and export it as combined tex and pdf
  - Show that if "special" is not chosen, we get only text
  - Change /frac into /dfrac
  - Show that at the time of compilation, dfrac unknown error
  - Include \usepackage{amsmath} in the tex file
  - Recompile it and show that the equation is now coming properly
  - Use pdftocrop to trim the pdf file, mention Briss
2. newcommand in LaTeX
  - What is a command?
  - Different types of commands with examples
  - Defining a new command
  - Defining short commands for long repeated input.
  - Commands with parameter
  - Passing parameters to the commands defined
  - Renewcommand
  - Redefining the existing commands to the required output
3. newenvironment in LaTeX
  - What is an environment?
  - Defining a new environment

- Defining environments with parameters
- Renewenvironment
- Redefining an existing environment to the required output

#### 4. Writing Style Files in LaTeX

- About LaTeX Styles files.
- Writing a Style file for LaTeX.
- Importing a Style file in LaTeX.
- Defining a standard Style file for LaTeX.
- newcommand in LaTeX.newenvironment in LaTeX.
- RequirePackage command in LaTeX.
- usepackage command in LaTeX.
- Style file identification.
- Preliminary declarations of a Style file.
- NeedsTeXFormat.
- ProvidesPackage.

#### 5. Indic Language Typesetting in LaTeX

- Typeset a document in Indic language using XeLaTeX.
- Indic language fonts bundle.
- Installing Indic language Fonts.
- Installing Nirmala UI Fonts.XeLaTeX Compiler.
- Using Fontspec package.
- Using Polyglossia package.
- Select language command.
- Set default language in LaTeX.
- Set other language in LaTeX.

### List of Students Enrolled

#	Name of Student
1	RAHUL JIYANI
2	RAHUL SHARMA
3	SAURABH AGARWAL
4	SHUBHAM GOYAL
5	SHUBHAM NATANI
6	SHUBHAM SHARMA
7	SHUBHAM TAILOR
8	SOURABH GODHA
9	UDIT SETHI
10	UNNATI TRIVEDI

11	UTKARSH DANGAYACH
12	VAISHALI DAIYA
13	VIJAY GOYAL
14	NARESH SAHU
15	NEHA SHARMA
16	SUMIT ARORA
17	DIVYANSHU SHARMA
18	HIMANSHU NA
19	SOURAV KUMAR
20	SRIYAM NA
21	ADITYA SONI

22	GORAL ARORA
23	SHUBHAM MANGAL
24	SONAL SAXENA
25	SONALI AGARWAL
26	SWATI JAIN
27	UMA PAREEK
28	VAISHALI BHAWNANI
29	VISHAL SINGH RATHOD
30	YASHMAYEE JAIN
31	AAKARSHAK SINGH JASROTIA
32	ABHIJIT KULARIA
33	ADITI PAREEK
34	AISHWARYA RATHORE
35	ALEKH SHARMA
36	AMIT MAHAWAR
37	ARCHIT JAIN
38	ASHUTOSH JAIN
39	AYUSHI AGRAWAL
40	BHAVNA RATHI
41	BHAWANA AGARWAL
42	CHAVI GUPTA
43	CHAYAN SHAH
44	CHIRAG GANGWAL
45	HARSH AGRAWAL
46	HARSH BANSAL
47	ISHWAR KUMAR MAHAWAR
48	KIRTI DODEJA
49	KRITIKA BANSAL
50	MAHAVEER KUMAR DHAKER
51	MEENAL JAIN
52	MEHUL KUMAR
53	MINI SHARMA

54	MOHAK GAUR
55	MONIKA PRASAD
56	MUDIT CHORARIA
57	MURTUZA TALWALA
58	NIDHI GUPTA
59	NIKHIL GAMBHIR
60	PAWAN KUMAR
61	PREETI JAIN
62	PREM PRAKASH
63	RUCHIKA SONI
64	SAURABH JAIN
65	SAURABH SACHDEV
66	SHUBHAM KHANDELWAL
67	SONALI SHARMA
68	VAISHNAVEE SHARMA
69	VISHAL HASNANI
70	YASH SHRIMALI
71	YATHARTH SRIVASTAVA
72	AYUSH SHARMA
73	SHUBHAM VAISHNAV
74	RAMYA NAYYAR
75	PRARTHANA NAMA
76	ARPIT KUMAWAT
77	TEENA NAGAR
78	SONAL MANSINGHKA
79	VIPUL SHARDA
80	AJIT KUMAR RAI
81	ISHANI PANDYA
82	JAGRATI BASRANI
83	NEHA TIWARI
84	AKSHIKA JAIN
85	CHIRAG LALWANI