

# Latex Certificate Course Instructions

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## 1 Beamer

L<sup>A</sup>T<sub>E</sub>X can also make presentations. It has multiple classes for buliding presentations. And **beamer** class is a popular option. The current version of this L<sup>A</sup>T<sub>E</sub>X class is 3.62. And is maintained by samcarter and Joseph Wright. The class documentation is available at CTAN.

L<sup>A</sup>T<sub>E</sub>X documents can have one class and multiple packages. Package provides commands that work almost everywhere whereas Class is used for imposing documentation standards suggested by different institutions or to build special purpose documents - presentations, books, thesis, poster, brochure, calendar, ....

### 1.1 frame environment

The presentations made using beamer class are called beamer presentations. The **frames** are the building blocks of a **beamer** presentation. Beamer uses **frame** environment to define frames. And `\frametitle` command is used for frame titles. The frames gives a structure to the slides. Using `\pause` command, you can build multiple slides from a frame which we will see later.

## 2 Themes

We have presenation themes in Beamer. Beamer also allows us to use four different class of themes — color, font, inner and outer. The presentation themes contain a particular combination of these four themes. The color themes decides the color, font themes the font, inner themes the contents of a frame and outer the header, footer, navigation, and sidebars.

The font, inner and outer theme details are available in beamer documentation available at CTAN. A list of popular presentation and color themes are given,

### 2.1 Presentation Themes

The following are a few presentation themes. 1. AnnArbor 2. Antibes 3. Bergen 4. Berkeley 5. Berlin 6. Boadilla 7. CambridgeUS 8. Copenhagen 9. Darm-

stadt 10. Dresden 11. EastLansing 12. Frankfurt 13. Goettingen 14. Hannover 15. Ilmenau 16. JuanLesPins 17. Luebeck 18. Madrid 19. Malmoe 20. Marburg 21. Montpellier 22. PaloAlto 23. Pittsburgh 24. Rochester 25. Singapore 26. Szeged 27. Warsaw

A few themes above might require that you install the theme before you use them. The `\usetheme` command is used for applying a theme to your beamer presentation. This command is written in the preamble. For example, `\usetheme{Warsaw}` will apply `Warsaw` theme to your beamer presentation.

## 2.2 Colour Themes

L<sup>A</sup>T<sub>E</sub>X beamer has a few color themes, 1. albatross 2. beaver 3. beetle 4. crane 5. dolphin 6. dove 7. fly 8. lily 9. monarca 10. orchid 11. rose 12. seagull 13. sea-horse 14. spruce 15. whale 16. wolverine

The `\usecolortheme` command is used for changing colors for a selected theme. For example, `\usecolortheme{seagull}` will apply `seagull` color theme to different presentation themes. For a quick decision you may use theme matrices.

Once again, we start from the content. You may apply some presentation theme and color theme. But, you should try to complete the content before searching for a theme and colour scheme suitable to your audience and content.

## 3 What's so special about Beamer ?

For beamer presentations, the L<sup>A</sup>T<sub>E</sub>X syntax is quite the same. The sectioning commands, text formatting commands, list-figure-table environments, math mode, mathematics environments from AMS are all available.

The difference is that the typesetting is quite different for beamer presentation. For example, the list bullets looks quite different for the slides. But we always write them the same way we wrote lists in L<sup>A</sup>T<sub>E</sub>X articles and books. L<sup>A</sup>T<sub>E</sub>X document classes are designed to makes suitable changes automatically.

### 3.1 Front Matter

#### 3.1.1 Title Page

The `\maketitle` command inside a frame environment will generates the title page with the help of `\title`, `\author`, `\institute` and `\date` commands.

#### 3.1.2 Contents Page

The `\tableofcontents` command inside a frame environment will generate navigation enabled table of contents slide with the help of sectioning commands used in the document.

**Note :** The sectioning commands are usually written outside frame environments as we often don't want to display them on slides. And you can see that  $\text{\LaTeX}$  only prints what is written inside `frame` environment.

You might wonder why would someone write material which are not going to be printed. The  $\text{\LaTeX}$  system wants you to write your content in a structured way.

Though, the titles of the sectioning commands are not printed as frame titles — beamer uses them for table of contents, references as well as for headers/footers. And a few themes uses these sectioning commands for slide navigations as well.

```

1 \documentclass{beamer}
2 \usepackage{graphicx}
3 \usetheme{Warsaw}
4 \usecolortheme{seagull}
5 \title{Beamer Presentation}
6 \subtitle{An introduction to presentations written in \LaTeX{}}
7 \author{Jacob Antony}
8 \institute{KE College, Mannanam}
9 \date{\today}
10
11 \begin{document}
12 \begin{frame} \maketitle \end{frame}
13 \begin{frame} \frametitle{Contents} \tableofcontents \end{frame}
14
15 \section{Introduction}
16 \begin{frame} \frametitle{Frame Title}
17 Collatz Conjecture
18 \end{document}

```

Figure 1: Beamer Presentation

In Figure 1 at line 6, `\subtitle` command is available in Beamer documents to give a short description of the title. And at line 8, we have `\institute` command for adding institution's name into the title page. At line 12, title slide is created. At line 13, table of contents slide is created. And at lines 16-18, a sample slide is created.

One advantage of using  $\text{\LaTeX}$  to build your presentation is that you can build presentation from an existing  $\text{\LaTeX}$  document. Thus, you can reuse almost all your content — figures, tables, equations, theorems, ....