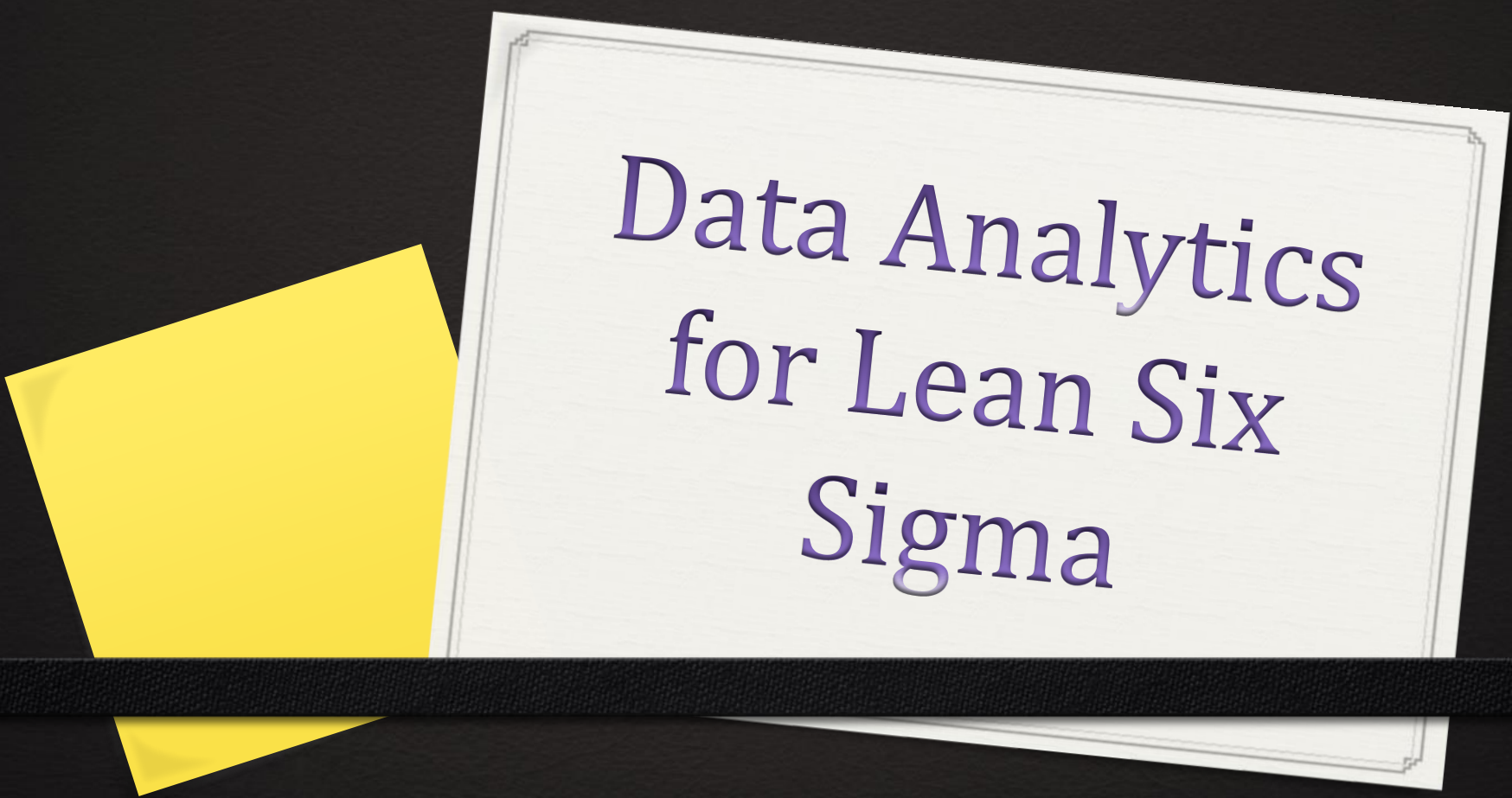




Data Analytics for Lean Six Sigma

Course Description

» Data Analytics

- Analyses raw data to find trends and metrics
- Encompasses different techniques

» Lean Six Sigma

- A systematic approach designed to improve performance on continuous basis by eliminating wastes and defects
- Ensures high quality framework and customer satisfaction

» Lean Six Sigma Accompanied by Data Analytics

- Paradigm of veracious methodology for tangible and intangible benefits
- Achieve better and accurate decisions for better and confident results



Objectives

The objective of this course is classified as:

- Learn data analytic techniques to analyse and interpret data gathered within Lean Six Sigma improvement projects.
- Use of data analytic tools to interpret the outcome using different actual Lean Six Sigma projects to illustrate tools.
- Application of Minitab while analysing data using appropriate analytic technique.
- Understanding techniques to handle broader setting of data besides improvement projects.



Course Contents

1. Data and Lean Six Sigma

Key Learning :

- Introduction to Lean Six Sigma
- Understanding of five phases of DMAIC
- Use of CTQ to quantify and measure problem
- Representative sample collection
- Organization of data and difference between units and variables
- Defining an operational definition corresponding to a CTQ



2. Understanding and Visualizing Data

Key Learning :

- Differentiating numerical and categorical data.
- Interpretation of descriptive statistics.
- Creating histogram and boxplot, and interpretation of graphs.
- Creating bar chart, pie chart and tally table to interpret the results.
- Creating and interpreting Pareto chart.
- Creating appropriate graphical visualization for two variables data and interpreting the outcome.



3. Probability Distributions

Key Learning :

- Relationship between sample and its population.
- Understanding use of estimation
- Quantifying precision of estimate using confidence interval
- Distinguishing different types of probability distributions
- Distributions of numeric variable using probability plots
- Probabilities and percentages using Empirical CDF
- Computing probabilities for normally distributed variables
- Parameters of normal distribution



4. Introduction to Testing

Key Learning :

- Identifying Xs and Ys, and selecting appropriate test
- Interpreting p-values of hypothesis test
- Interpreting results by differentiating causality and relation



5. Testing : Numerical Y and Numerical X

Key Learning :

- Interpreting and use of correlation
- Learning when regression is applicable
- Performing regression and interpreting output (p- value and R square)
- Computing and interpreting a prediction interval
- Performing and interpreting a quadratic regression
- Judging the validity of regression using a residual analysis



Learning Methodology

Course has used education via asynchronous methodology to effectively acquire up productive knowledge. The tools used in this course to manage learning environment are:

- Curriculum
- Digital library tools, supplementary tools
- Downloadable pre-recorded videos
- Minitab
- Forums and Discussion Boards
- Demonstrations via real life Lean Six Sigma Projects
- Quizzes per module
- Problem based learning practice and
- Case studies



Key Learning

With the use of different examples from actual Lean Six Sigma projects it enhanced the insights on:

- Statistics
- Lean Six Sigma
- Data Analysis
- Minitab

It has provided knowledge, tools and guidelines to apply effectively within the DMAIC model. But the main focus was on applying the concepts to conduct projects. It has also emphasized techniques to analyse the root causes for process failures and implementing controls for process improvements.



THANK YOU

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