Statistical Concept for Six Sigma & MINITAB Software Training

Part 1

This training course is designed to provide the review of statistical concepts and data analysis techniques necessary for Six Sigma. The topics include a review of:

- Statistics and Six Sigma
- Basic Statistical Concepts: Variation and Variation Reduction

- Overview of Descriptive and Inferential Statistics
    - Statistics and Variability
    - Descriptive Statistics: Graphical and Numerical Tools
    - Visual Representation of Data
- Quality Tools (Computer applications)

- Introduction to Probability and Probability Distributions
- Review of Discrete and Continuous Probability Distributions
- Computer Simulations to Understand Statistical Concepts

- Review of: Sampling and Sampling Distribution
    - Estimation and Confidence Interval
    - Hypothesis Testing
    - Analysis of Variance (ANOVA)
    - Control chart fundamentals
- Computer Applications, Cases, and Simulations Involving above topics.

Part 2

The second part of this training is designed to teach the essentials of MINITAB Statistical Software which contains the analysis tools for Six Sigma and related technologies. MINITAB software is widely used by companies using quality/data analysis and Six Sigma quality. We will train you to use MINITAB software that will enable you to use and understand Six Sigma tools and perform simple to complex data analyses and use and interpret the results. This training can also be combined with our other training modules including : Statistical Applications and Data Analysis for Business and Industry I and II. The course assumes a familiarity with statistical techniques and principles that underlie the statistical procedures.

The course is designed for those who are using data analysis and statistical techniques and want to learn and implement the techniques using a standard statistical software such as, MINITAB. In this course you will learn statistical techniques and data analysis using the computer. The course will cover both simple as well as advanced topics. The techniques learned through this course will help you to apply a correct statistical technique to solve a specific Six Sigma problem. The objective is to learn how to use MINITAB and be able to interpret the results. To be able to correctly interpret the results requires an understanding of the conceptual foundation upon which statistics, and data analysis tools are based.

Upon completion of this course, you will be able to:

- understand the computer system and software, data entry, editing and manipulation,
- numerical and graphical techniques using the MINITAB computer
- software
- construct various charts and graphs (Graphical /visual Techniques for
- Six Sigma and Lean Sigma)
- learn the visual quality tools for Six Sigma
- descriptive and inferential statistics using MINITAB
- random number generation
- probability distribution and how they work
- sampling and sampling distribution using computer
- estimation and hypothesis testing using computer
- regression analysis using computer
- performing analysis of variance using computer
- Learn and perform simulations that will help you understand the statistical concepts underlying Six Sigma
- In addition, you will learn to perform the following analyses using MINITAB

  - Quality Tools
  - Performing Sigma Level Calculations
  - Measurement System and Gage R&R Techniques using MINITAB
  - Performing Process Capability Analysis using MINITAB
  - Regression Analysis and Modeling
  - Multiple Regression, Non-linear Regression, Step-wise Regression and other modeling techniques using MINITAB

- Perform Analysis of Variance (ANOVA) using MINITAB
- Learn the Design of Experiment (DOE) techniques
- Learn Factorial, Fractional Factorial and other designs and their interpretation
- Control Charts and their application, construction, and interpretation using MINITAB.

The training can be tailored to your needs and requirements. You may select one or more of the topics you want to get trained on. The duration of the training will depend upon the topics you choose. This training can be completed on-line or using a blended mode, or face-to face in class training at our site or at your company.