Minitab Level 1 Training

Introduction to Minitab (Manufacturing)

Decrease the time required for statistical analysis by quickly learning to navigate Minitab's user-friendly and customizable environment. Learn how to import/export data and output between Minitab and various software and database systems. Enhance your ability to create, manipulate, and restructure data. Develop sound statistical approaches to data analysis by learning how to create and interpret a wide variety of graphs and numerical measures useful for quality improvement initiatives. This course focuses on the utilization of these tools as they pertain to applications commonly found in manufacturing, engineering, and business processes.

Topics covered include: Charts, Histograms, Boxplots, Dotplots, Scatterplots, Tables, Measures of Location and Variation, ODBC

This course is a prerequisite for all other general Minitab courses.

Basic Statistics (Manufacturing)

Augment your graphical analysis skills using Minitab's powerful statistical tools. Develop the foundation for important statistical concepts such as hypothesis testing and confidence intervals. By analyzing a variety of real world data sets, learn how to match the appropriate statistical tool to your own applications and how to correctly interpret statistical output to quickly reveal problems with a process or to show evidence of an improvement. Learn how to explore critical features in your processes through statistical modeling tools that help to uncover and describe relationships between variables. A strong emphasis is placed on making good business decisions based upon the practical application of statistical techniques commonly found in manufacturing, engineering, and research and development endeavors.

Tools Covered Include: t-Tests, Proportion Tests, Tests for Equal Variance, Power and Sample Size, Correlation, Simple Linear and Multiple Regression, ANOVA and GLM

Prerequisite: Introduction to Minitab

Optional Topic for On-Site Training: Nonparametric Tests

Minitab Level 2 Training

Statistical Quality Analysis (Manufacturing)

Develop the necessary skills to successfully evaluate and certify manufacturing and engineering measurement systems. Learn the basic fundamentals of statistical process control and how these important quality tools can provide the necessary evidence to improve and control manufacturing processes. Develop the skills to know when and where to use the various types of control charts available in Minitab for your own processes. Learn how to utilize important capability analysis tools to evaluate your processes relative to internal and customer specifications. The course emphasis is placed on teaching quality tools as they relate to manufacturing processes.

Tools Covered Include: Gage R&R, Destructive Testing, Gage Linearity and Bias, Attribute Agreement, Variables and Attribute Control Charts, Capability Analysis for Normal, Non-normal and Attribute data

Prerequisites: Introduction to Minitab and Basic Statistics

Optional Topic for On-Site Training: Acceptance Sampling for Attribute and/or Variables Data

Factorial Designs (Manufacturing)

Learn to generate a variety of full and fractional factorial designs using Minitab's intuitive DOE interface. Real-world applications demonstrate how the concepts of randomization, replication, and blocking form the basis for sound experimentation practices. Develop the skills necessary to correctly analyze resulting data to effectively and efficiently reach experimental objectives. Use Minitab's customizable and powerful graphical displays to interpret and communicate experimental results to improve products and processes, find critical factors that impact important response variables, reduce process variation, and expedite research and development projects.

Tools and topics Covered Include: Design of Factorial Experiments; Normal Effects Plot and Pareto of Effects; Power and Sample Size; Main Effect, Interaction, and Cube Plots; Center Points; Overlaid Contour Plots; Multiple Response Optimization

Prerequisites: Introduction to Minitab and Basic Statistics

Minitab Level 3 Training

Advanced Regression and ANOVA (Manufacturing)

Continue to build on the fundamental statistical analysis concepts taught in the Basic Statistics course by learning additional statistical modeling tools that help to uncover and describe relationships between variables. Hands-on examples illuminate how modeling tools help reveal key inputs and sources of variation in your processes. Learn how to use statistical models to investigate how processes may behave under varying conditions. This course provides techniques to help you better understand your processes and to focus and verify your improvement efforts.

Topics Covered Include: Multiple and Stepwise Regression; GLM with Covariates, Nesting and Random Factors; MANOVA; Binary and Nominal Logistic Regression

Prerequisites: Introduction to Minitab and Basic Statistics

DOE in Practice (Manufacturing)

Learn how to handle common DOE scenarios where classic factorial or response surface design and analysis techniques are neither appropriate nor possible due to the nature of the response variable or the data collection process. Develop techniques for experimental situations often encountered in practice such as missing data and hard-to-change factors. Understand how to account for variables (covariates) that may affect the response but cannot be controlled in the experiment. Explore the opportunities to minimize costs or variability while simultaneously optimizing an important product or process characteristic. Learn how to find and quantify the effect that factors have on the probability of a critical event, such as a defect, occurring.

Topics and Tools Covered Include: ANCOVA, Unbalanced Designs, Split-Plot Designs, Multiple Response Optimization, Binary Logistic Regression

Prerequisites: Introduction to Minitab, Basic Statistics, and Factorial Designs

Optional Topic for On-Site Training: Taguchi Designs