

Process Improvement Using Statistical Tools ES-161

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RU: 1.8 Prerequisites: High school level beginning algebra is strongly recommended

Abstract:

This course provides an understanding of the fundamental concepts of descriptive statistics useful in any manufacturing operation and for strong base for those who want to take and pass the various ASQ Certification Exams.

It is intended to give the student a basic knowledge of statistics by providing hands-on examples to illustrate statistical theory and its applications.

This is accomplished by determining the appropriate process variables for each statistical analysis and inputting the key values into the applicable equations.

Implementation of these powerful tools has been historically shown to increase productivity and quality while reducing operating costs.

This course is for anyone who wants a firm base in the fundamentals of statistics and the application of these mathematical tools to real-world manufacturing problems and situations.

It reveals the logic behind statistical methodology and shows how complex issues can be logically thought-out to improve manufacturing dilemmas.

This is an adult centered course for busy professionals. The classroom techniques will include lecture, individual participation, group problem discussion, case studies, and quizzes to test understanding.

A calculator with standard statistical functions is required.

Course content:

- Introduction to management concepts, quality terms/definitions, quality history, and quality personalities
- Review of fundamental algebra required to manipulate data
- Development and classification of statistical data into ungrouped and grouped data for presentation in frequency distribution tables, i.e., histogram, frequency polygon, frequency bar chart
- Use of the Measures of Central Tendency - mean, median, mode
- Use of the Measures of Dispersion/Variability - range, arithmetic mean deviation, standard deviation
- Correct use of the Normal Curve/Distribution - area under the curve
- When, where, and how to use Control Charting - variable data (X & R) and attribute data (p, np, c, u) and the concepts underpinning Cp and Cpk
- Review of standard management tools - flow chart, check sheet, Pareto principle, and cause and effect diagram.

Who should attend?

- Manufacturing personnel who want to apply the basic statistics tools to their work for improving productivity through the use of measuring, charting, and analyzing, manufacturing variables
- Anyone who wishes to pursue a curriculum leading to certifications as a Six Sigma Green Belt, Quality Engineer, Quality Technician, and Manager of Quality & Organizational Excellence.