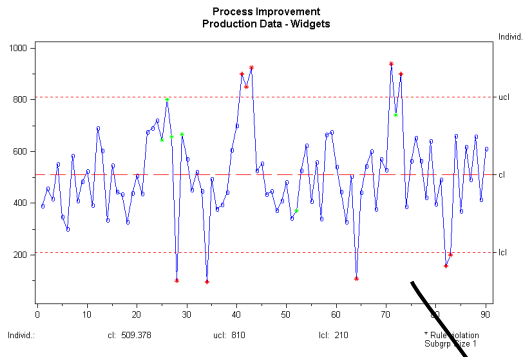
Intermediate SPC Training

Workshop for Applying Intermediate SPC and SQC Techniques

Workshop Description

This two-day, instructor-led workshop develops a more depthful understanding of the SPC concepts introduced in the Introductory SPC Workshop, evaluates subgroups, teaches how to apply and interpret pattern rules, and introduces a control chart decision diagram that is especially useful for learning how to analyze attribute data. Analysis techniques for confidence intervals and hypothesis testing are also examined.



Workshop Purpose

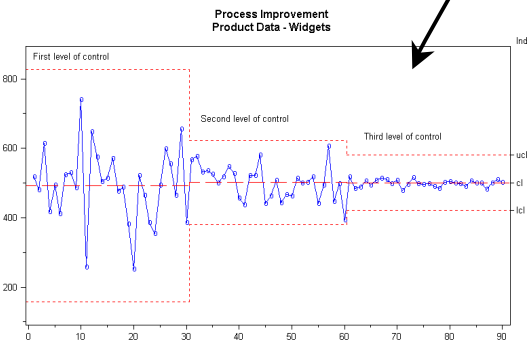
Targeted for Engineers, Managers, and Supervisors, this workshop introduces intermediate SPC techniques used to reduce process variation. Additionally, this workshop begins to develop quantitative analysis techniques that are applied as students cross the boundary between reducing variation (SPC) and improving the process (SQC).

Workshop Prerequisites

Successful completion of the 1-day Introductory SPC Workshop, or similar basic SPC training, is a firm requirement. Calculators are required for use in example problems.

Objectives

- Introduce intermediate statistical terminology, symbols, and equations.
- Explain the differences between SPC and SQC.
- Discuss the Standard Normal (Gaussian) curve.
- Teach how to establish process limits.
- Introduce the relationship between process limits and the Histogram.
- Expand on the application of process capability indices Cp and Cpk.
- Demonstrate why and when to use subgrouping.
- Teach the 7 basic SPC pattern rules.
- Introduce confidence intervals (z and t).
- Explore hypothesis testing (Z, T, and F)



Workshop Curriculum

Introduction

Confirm prerequisites are met, introduce the workshop goals, and review the curriculum.

Process Limits

Examine the Standard Normal (Gaussian) curve. Teach the details of how to establish appropriate process limits. Explore the relationship between process limits and the Histogram.

Subgroups

Review the proper technique to determine why and when to use subgroups for individual and x-bar charts.

SPC Pattern Rules

Teach the use and interpretation of the 7 basic pattern rules. Explore the most effective questions to ask when investigating a out of control condition.

Control Chart Types

Introduce a detailed decision diagram for determining which control chart to use and why. Provide insight to the analysis of attribute data (p, np, c, u).

Confidence Intervals

Explain Type I Error (Alpha Risk) and Type II Error (Beta risk). Introduce the method for analyzing the significance of the mean difference between two processes (T test).

Hypotheses Testing

Explore the relationship between the Null Hypothesis (H_0) and Alternative Hypotheses (H_1). Introduce the method for analyzing the significance of the variation between two processes (Z test).

Conclusion

Review the intermediate SPC topics. Provide for open discussion, questions, and answers.