Statistical Process Control (SPC) Fundamentals

Length: 5 Days

Summary: Most statistical process control (SPC) training focuses on methods rather than execution and strategy skills. The focus of this course is not on basic SPC tools, but rather on how to use these tools to the best advantage. This course will maintain an instructional format with a blend of lectures, workshops, and practice problem sessions. As a result of this course, participants will acquire a good understanding of how to apply or refine SPC efforts.

Audience: This course is recommended for manufacturing engineers, production supervisors, quality control managers, inspectors, and manufacturing management.

ROLES & BENEFITS: What can Statistical Process Control do for you?

SPC is a method of monitoring a process during its operation in order to control the quality of the products while they are being produced -- rather than relying on inspection to find problems after the fact. It involves gathering information about the product, or the process itself, on a near real-time basis so that the operator can take action on the process. This is done in order to identify special causes of variation and other non-normal processing conditions, thus bringing the process under statistical control and reducing variation

Take this training and you will be able to:

- Better understand variation in manufacturing processes including patterns and measures of variation.
- Monitor and control variation with variable and attribute control charts.
- Describe basic process capability concepts and the importance of capability when using control charts.

COURSE CONTENT

SECTION 1 – STATISTICS INTRODUCTION

Lesson 1 Introduction to variation

What variation is and why it's a problem in manufacturing.

Lesson 2 Measuring Variation

Using a histogram to measure the variation in a process

Lesson 3 Patterns of Variation

Types of patterns of variation, what they tell you, and what to do about them

Lesson 4 Measures of variation

Statistical measures of variation: mean, range, and standard deviation.

Lesson 5 Normal curve

Properties of the normal curve and the 68, 95, 99.7 rule.

Lesson 6 Stability

The importance of a stable process in manufacturing

SECTION 2 - USING CONTROL CHARTS

Lesson 1 What are Control charts

What control charts are and why they are used.

Lesson 2 What a control chart looks like

Common elements of all control charts.

Lesson 3 Interpreting control charts & taking action
Common elements of all control charts.

Lesson 4 Types of Control charts

Variable and attribute control charts: which do you use when?

Lesson 5 Using variable control charts

Calculating and plotting data and interpreting the chart.

Lesson 6 Using attribute control charts

Calculating and plotting data and interpreting the chart.

SECTION 3 - PROCESS CAPABILITY BASICS

Lesson 1 What is process capability

What process capability means and why it's important.

Lesson 2 Measuring process

Capability The capability ratio, process capability index, and Cpk.