
Implementing Statistical Process Control On-Site Seminar

Since the early 1980's major corporations have often mandated the use of Statistical Process Control (SPC) techniques for both internal and Supplier operations. When implemented correctly, SPC can be a powerful tool for achieving quality and productivity. The key to success with SPC is in knowing when, where, and how it should be used.

Implementing Statistical Process Control is an in-depth Seminar covering all of the basic tools and techniques of SPC. Beyond this, it covers the critical business and management issues faced by companies trying to start, improve, or expand a SPC program.

This Seminar is oriented toward Managers, Supervisors, Engineers, and Quality Professionals. Participants need not have any previous training in SPC. The content can be customized to meet the needs of specific departments or personnel.

Implementing Statistical Process Control is divided into four major sections and requires approximately 32 hours for presentation. Various presentation schedules are available to meet your requirements.

Seminar participants receive copies of Learner Handbooks and Learner Workbooks for each section, a statistical calculator, and additional materials.

Call us to learn how to succeed with SPC at your company.

Seminar Outline:

Section 1 - Introduction to SPC

Unit 1 - Introduction to SPC

- Statistical Process Control
- Process Variation
 - Common Causes
 - Assignable Causes
- Quality Characteristics
 - Variables
 - Attributes
- Distributions
 - Population
 - Samples
 - Distribution

Unit 2 - Frequency Tables

- Frequency Table
- Variables Data Form
 - Zero Value
 - Unit of Measure
 - Recorded Value
- Labeling Frequency Tables
- Recording Measurement Values
- Recording Frequency of Occurrence
- Recording Cumulative Frequency
- Recording Cumulative Percent
- Cell Width

Unit 3 - Histograms

- Histograms
- Labeling Histograms
- Constructing Histogram Bars

Unit 4 - Probability Plots

- Probability Plots
- Lower Percentage Scale
- Upper Percentage Scale

Unit 5 - Mean and Standard Deviation

- Mean
- Standard Deviation
- Population Mean
- Population Standard Deviation
- Sample Mean
- Sample Standard Deviation

Unit 6 - Control Charts

- Control Charts
- Subgroups
- Mean
- Range
- Upper and Lower Control Limits
- Common Causes
- Assignable Causes
- Types of Control Charts

Unit 7 - Process Capability

- Histogram Method
 - Capability Ratio
 - Capability Index
- Normal Probability Plot Method
- Process Capability Studies

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Unit 8 - Actions and Options

- In Statistical Control and Capable
- In Statistical Control and Incapable
- Out of Statistical Control and Capable
- Out of Statistical Control and Incapable
- Options
- Summary

Section 2 - Variables Control Charts

Unit 1 - Introduction

- Process Capability – Variables Control Charts
- Review of Control Chart Theory

Unit 2 - Types of Control Charts

- Types of Control Charts
- Process Capability Studies

Unit 3 - Collecting Variables Data

- Selecting Characteristics to be Charted
- Determining the Subgroup Size
- Determining the Sampling Interval

Unit 4 - Starting the X Bar and R Chart

- Collecting the Data – Zero Value
- Unit of Measure

Unit 5 - Calculations

- X Bar - Subgroup Average
- R - Subgroup Range
- X Double Bar - Grand Average
- R Bar - Average Range
- Labeling the Charts
- Plotting Points
- Upper and Lower Control Limits

Unit 6 - Interpreting Patterns

- Natural Patterns
- Unnatural Patterns
- Outliers
- Runs
- Sudden Change in Level
- Mixtures
- Trends

Unit 7 - Determining Process Capability

- Capability Index
- Capability Ratio
- Centering the Process

Section 3 - Attributes Control Charts

Unit 1 - Introduction

- Quality Characteristics
- Conformance to Specifications
- Defect
- Defective
- Nonconformities
- Nonconforming Units
- Review of Control Chart Theory
- Process Capability Study

Unit 2 - Types of Attribute Control Charts

- Selecting Which Control Chart to Use
- Creating Attribute Control Charts
- Determining the Subgroup Size and Sampling Interval
- Constructing the Control Charts
- Plotting the Data

Unit 3 - Constructing p Charts

Unit 4 - Constructing np Charts

Unit 5 - Constructing c Charts

Unit 6 - Constructing u Charts

Unit 7 - Types of Patterns

- Natural Patterns
- Unnatural Patterns
- Outliers
- Runs
- Sudden Change in Level
- Mixtures
- Trends

Unit 8 - Determining Process Capability

Section 4 - Implementing SPC

Unit 1 - Implementing SPC

- Introduction
- Training
- Where to Use SPC
- Choosing Between Variables and Attributes Methods
- Measurement Variability
- Actions based on Capability Determination
- Establishing Standard Values for Control Charts

Unit 2 - Cause and Effect Diagrams

- Cause Enumeration Diagram
- Dispersion Analysis Diagram
- Process Analysis Diagram
- Brainstorming Sessions
- Making a Cause Enumeration Diagram
- Making a Dispersion Analysis Diagram
- Making a Process Analysis Diagram

Unit 3 - Making and Using Cause and Effect Diagrams

- Cause and Effect Diagrams
- Cause and Effect Diagram Summary

Unit 4 - Pareto Diagrams

- Pareto Diagrams
- Pareto Diagram Summary

Unit 5 - Automating SPC

- Calculators
- Smart Instruments
- Stand-Alone Systems
- Computers

Unit 6 - Designed Experiments

- Regression Analysis
- Linear Regression
- Making a Scatter Diagram – Scatter Diagram
- Negative Correlation
- Positive Correlation
- Summary

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