

Understanding Core Tools: Statistical Process Control (SPC)



Course Duration: 1 Day - 8 Hours/day

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Seminar Content

This one-day overview is designed to provide participants with a basic understanding of the importance of SPC in controlling and improving the production process and to give students a practical knowledge of using statistical methods in analyzing the production and service processes. This seminar is consistent with the SPC 2nd Edition Reference Manual issued by GM, Ford, and FCA through the AIAG.

Learning Objectives

- ❖ Identify the different uses of basic variables control charts
- ❖ Explain common and special causes
- ❖ Relate within and between variation to common and special causes
- ❖ Explain the relationship between C and P indices, and the different methods of estimating standard deviations
- ❖ Identify appropriate uses for Cp, Cpk and Pp, Ppk
- ❖ Explain the relationship between the capability indices to determine process improvement actions
- ❖ Explain the relationship between process control and process capability

Seminar Outline

- ❖ SPC Background
- ❖ Process Fundamentals
- ❖ Prevention vs. Detection
- ❖ Process Variation
- ❖ Control vs. Capability

- ❖ Basic Statistics
- ❖ Breakout Exercise 1: Analyzing Data
- ❖ Normal Distribution
- ❖ Central Limit Theorem
- ❖ Introduction to Control Charts
- ❖ Statistical Control
- ❖ Types of Control Charts
- ❖ Basic Control Chart Elements
- ❖ Basic Control Charts
- ❖ \bar{X} & R Chart
- ❖ Breakout Exercise 2: Plotting Data
- ❖ Breakout Exercise 3: Control Limits for \bar{X} & R Control Charts
- ❖ Basic Attribute Control Charts
- ❖ Characteristics of Attribute Charts
- ❖ Types of Attribute Charts
- ❖ Analyzing Control Charts
- ❖ Common Out-of-Detection Rules
- ❖ Patterns that Signal Out-of-Control
- ❖ Breakout Exercise 4: Interpreting Control Charts
- ❖ Capability Analysis
- ❖ Capability Basics
- ❖ Bilateral Tolerances and Capability
- ❖ Unilateral Tolerances and Capability
- ❖ Breakout Exercise 5: Calculating Indices

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Who Should Attend

Individuals who have direct responsibility for defining and developing an organization's measuring, monitoring and analytical practices using data collection, charts and statistical tools appropriate for its products, processes and business goals and objectives. We will look for suitable statistical tools to identify the same sources of variation in our manufacturing or services and to control that variation.

Seminar Materials

Each participant will receive a seminar manual, including workbook and all team exercise materials.

Pre-Requisite

Participants should possess basic math skills.

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