

Statistical Process Control

This is a practical and comprehensive programme covering the most common SPC charts, the principles and practice of SPC, understanding variation and reacting to special and common cause action. The full content described below takes two days but a one-day version is also available which covers all the basics.

It is a fact that all processes vary. In manufacturing you can see the effects of some of the variation because the items produced look a little different, or are different sizes when measured. In transactional processes it may be less obvious but, for example, the time it takes to process an identical purchase order is never exactly the same as the one before making it hard to plan the day's work and to know when something has gone wrong. When the variation is excessive, we may receive customer complaints.

There are two types of process variation – *common cause* and *special cause*. Process management and improvement depend on understanding whether the process variation is natural (common cause variation) or unnatural (special cause). The reason this knowledge is critical is that the two types of variation require a very different response and when the wrong response is taken, the consequences are not just ineffective but counterproductive. This is one of the reasons why operations firefight endlessly and are constantly busy but fail to make progress.

The technique used to determine the type of process variation is the Statistical Process Control chart (SPC Chart / Control Chart). These are simple visual tools which are used by management and out in the operation to manage the process. The type of process is irrelevant - manufacturing or transactional, all business processes vary.

The course starts with the basics of using data to understand process performance. It covers how to sample from a process, how to collect data and then how to generate and interpret the appropriate SPC chart to determine the type of variation and the appropriate response for each. Minitab software is used and data sets are provided.

Who is the course for?

Everyone one involved in process operation or process improvement. It is suitable for employees of all levels from manufacturing and transactional environments.

Learning Outcomes

- You will learn the most common SPC Charts and how to select the most appropriate one for your process data
- You will learn how to collect data, set up and use the chart
- You will learn how to use the charts to identify the type of variation present in the process and what the appropriate action is when requirements are not being met – and also the consequences of taking the wrong action

Course Contents

- Determining the right things to measure
- Data Types
- Process sampling
- Systematic Sampling
- Subgroup Sampling
- Planning and Managing Data Collection
- Summarising and presenting data
- Understanding Variation
- Common and Special Cause action
- Statistical Process Control using the X/mR Chart
- Tests for Special Causes
- Attributes Charts (p, np, c, u, Laney)
- Xbar/R and Xbar/S Charts
- Setting up and using control charts
- Out-of-control-action plans (OCAPs)

Delegates will need to have at least the 30 day Minitab demo installed on their pc. We can also deliver this course using SPC Plus s/w which we provide free and Excel. The course can be adapted to other software packages.

Supporting Materials

Delegates receive printed and pdf copies of the training slides and 12 months access to the relevant content in our video library.

Pre-requisites

If you are intending to use SPC in your processes you will need to ensure that the measuring process is fit for purpose so you may wish to consider taking the Measurement Systems Analysis course prior to this one. Please contact us to discuss.

You may also wish to take the one day Introduction to Graphical Data Analysis using Minitab. Alternatively, we can offer e-learning to introduce the Minitab basics.

Follow on courses

- Process Capability Analysis
- Hypothesis Testing
- Regression Analysis
- Design of Experiments

Catalyst offers Minitab statistical analysis training at introductory and advanced level in topics including Statistical Process Control, Capability Analysis (Cp/CpK), Hypothesis Testing, Regression Analysis, Measurement Systems Analysis, Design of Experiments.