Statistical Process Control (SPC)

Programme Overview

Statistical Process Control (SPC) involves using statistical techniques to monitor and control processes, ensuring they operate efficiently and consistently within defined parameters. It allows for real-time monitoring of process variation, identifying any deviations from the norm to facilitate timely corrective actions. Process Capability measures a process's ability to consistently produce output within specified limits, gauging its ability to meet customer requirements. Understanding SPC and Process Capability is beneficial across industries, it enables organizations to enhance product quality, reduce defects, optimize processes, and increase customer satisfaction. Regardless of the sector, these methodologies provide valuable insights into process performance, enabling proactive measures to be taken to maintain consistency, minimize variations, and continuously improve operations.

Audience

This training is practitioner level and suitable for anyone involved in measuring, managing and improving ongoing processes. Typical attendees include including Process Managers and Engineers, Quality Professionals, Process Owners, Operators and Continuous Improvement practitioners such as Lean Six Sigma belts.

No pre-requisites are required to attend the course although some level of basic numeracy is helpful to understand and interpret the results from the analysis.

Learning Outcomes

- Understand the basic principles and concepts of Statistical Process Control
- Understand the different types of process variation
- Understand the considerations to collect and analyze process data effectively for SPC
- Be able to construct SPC charts for continuous and attribute data
- Be able to interpret and analyze Control Charts for process stability
- Understand Process Capability Indices (Cp, Cpk) and their significance.
- Be able to apply SPC and Process Capability concepts to practical case studies or real life scenarios.
- Explore how SPC and Process Capability contribute to continuous improvement initiatives.
- Develop strategies to implement SPC and Process Capability taking into account any industry or customer specific guidelines or standards

These objectives aim to equip participants with a comprehensive understanding of SPC and Process Capability, providing practical tools and knowledge applicable across different industries for process improvement and optimization. Adjustments can be made based on specific industry requirements or participant backgrounds.

In Company

This programme is delivered in-company and can be tailored where required to align with industry or in-company standards and software.

The programme can be delivered on-site or virtually.

The sessions will be bespoke, lively and highly practical, delivering a memorable learning experience for the delegates. For in-company sessions we encourage working on your own live examples in the classroom exercises

We will discuss your objectives prior to the delivery, and help you to plan the most effective training and support to your team of delegates.

The practitioner training is 1 - 2 days, depending on the scope of methods required to be covered.

For international programmes we can start at anytime. For example the format for virtual delivery can be a series of half-day sessions spread over one or more weeks.

Content

Introduction to SPC
- Fundamentals of SPC: Core principles, significance, and benefits.
- Understanding process variation
- Application of SPC and links to other core quality tools

Data Collection and Analysis
- Pre-requisistes to SPC
- Planning an SPC and Capability Study
- Methods for effective data collection.
- Understanding the data and probability distributions

Charting Techniques
- Control Chart Basics: Understanding different types of control charts
- Control Charts for Variable and Attribute Data
- SPC for special situations
- Interpretation and analysis for process stability.
- Applying SPC tools to simulated scenarios or real world examples

Process Capability Analysis
- Understanding Capability Indices: Introduction to Cp, Cpk, Pp and Ppk and their interpretation
- Capability Analysis for Attribute Data
- Dealing with Non-Normal Data
- Capability Assessment: Evaluating process capability and performance.

Practical Application
- Applying Process Capability in the workplace
- Integration with Quality Systems: Incorporating SPC and Process Capability into quality management systems.
- Developing strategies for implementing SPC and Process Capability in organizations.
- Action Planning: Outlining action plans for applying SPC and Process Capability in participants' work environments.