Statistical Process Control (SPC)

Course Description

As well as being core components of the Six Sigma approach, Statistical Process Control (SPC) is also a key element of ISO/TS16949, where it is required to be used within the Product Realisation process.

Many problems encountered with Statistical Process Control (SPC) and Design of Experiments (DOE) is caused by problems with measurement systems where the process of obtaining measurements and data may have variation and produce defects.

Statistical Process Control is an optimisation philosophy concerned with continuous process improvement, using a collection of (statistical) tools for data and process analysis making inferences about process behaviour. SPC is a key component of Total Quality initiatives and ultimately SPC seeks to maximise profit by improving product quality, improving productivity, streamlining process, reducing wastage and reducing variation

Course Objectives

This interactive and practical course will provide delegates with a basic knowledge and understanding of the principles of Statistical Process Control and the methodologies for performing capability studies. Our course is highly practical and avoids detailed knowledge or discussion of statistical theory.

Key Skills / Learning Objectives

Through the combination of interactive tutorials and workshops, our course will enable the delegates to:

- Generate, utilise and interpret a variety of Control Charts (Xbar/R, S & Attribute).
- Perform a capability study and determine process capability indices (Cp, Cpk, Pp and Ppk).
- Interpret the results in the context of the process variation and product acceptance criteria.

Practical workshops are designed to reinforce the discussions and topics. This style of delivery makes the course both memorable and enjoyable for participants, ensuring long-term learning.

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Course Content

1. **The existence and measurement of variation**

   - Concepts
   - Variation
   - Data tables, histograms and run charts
   - Normal Distribution
   - Accuracy and Precision
   - Measures of variation (mean, mode, median, range, standard deviation and variance)

2. **Understanding and Managing Variation**

   - Common and special causes
   - Taking appropriate action on common and special causes
   - Process improvement methodology
   - Reacting to special causes
   - Statistical Control, what it is and the advantages of processes being in control vs tampering with the process

3. **Role of Control Charts**

   - Role, uses and definition of control charts
   - Types of Control Charts

4. **X-Range Charts**

   - Use of Charts
   - Preparation and use of control charts
   - Examples
   - Measures of variation (mean, mode, median, range, standard deviation and variance)

5. **Attributes Charts**

   - c, p, np and u charts (overview)
   - Examples

6. **Capability Analysis**

   - Process capability
   - Performing a process capability study

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Additional Core Tools include:

Measurement Systems Analysis (MSA); Advanced Product Quality Planning (APQP) and Production Part Approval (PPAP); Failure Mode & Effects Analysis (FMEA)

Course Duration

1 - 2 Day Highly Interactive Course

Target Audience

- Personnel involved in manufacturing, quality, inspection, design/process engineering.
- Those who are required to develop and interpret control charts.

Other Details:

- Payment to be made within 15 days from the date of the invoice.
- All payments must be made by cheque/online transfer etc., drawn in favour of Sieger Training India. Sieger will charge on INR basis only.
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