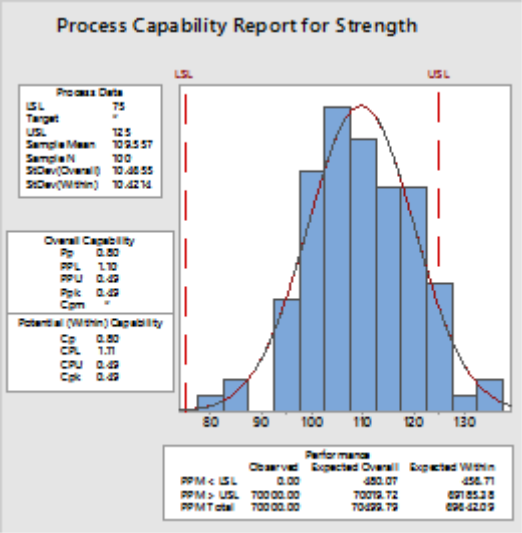
# Process Capability Analysis

This one-day programme is one of a series of courses teaching the use of statistical methods to measure, understand and improve process performance. Process Capability uses statistical calculations to determine the ability of the process to meet specifications.

The most common statistics produced are the Cp/CpK indices. They are used to:

- Indicate number of defects the process is expected to produce
- Compare the capability of a number of processes, each with different units of measurement and specs
- Identify processes most in need of improvement
- Track relative improvement in a process over time
- Part of the acceptance criteria when transferring a process from Development to Manufacturing
- Part of supplier qualification criteria




Process Engineers use capability analysis on the process inputs and process steps to quantify current performance and to measure improvement. If the capability of the process inputs and steps can be improved, it follows that the process output (the product) quality will be improved.

Design engineers use capability analysis to ensure that the products they design and specify are manufacturable.

## Who is the course for?

This is a core technique for all engineers– manufacturing, design, supplier quality.

## Learning Outcomes

- You will learn how to calculate Cp/CpK indices and use them in practice
- You will learn the statistics behind the indices and how to ensure the analysis is applied correctly.

## Course Contents

- Recap of Types of Variation and Statistical Process Control
- The normal distribution and normal probability
- Assessing normality using probability plots
- What to do if data is not normal

- Data transformation
- Taguchi's Loss Function
- Capability Concepts
- Calculating and using Cp/CpK
- Checking assumptions
- Pp/PpK indices
- Uses of Capability Analysis
- Capability Analysis for defects and defectives

Delegates will need to have at least the 30 day Minitab demo installed on their pc. 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

Process Capability is only valid on processes which are stable (in statistical control). Therefore, knowledge of Statistical Process Control is a pre-requisite. Data quality is also assumed so Measurement Systems Analysis training may also be needed.

## Follow on courses

These statistical methods are used to analyse the process with the aim of improving capability

- 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.*