

Further Process Measurement and Analysis Techniques

2 days

The course is a direct follow-on from Data Driven Insights and Decisions. It adds a number of techniques to extend the statistical tool set, some of which are particularly relevant to delegates from Manufacturing/Technical environments. Topics include Gauge R&R Studies (continuous data), Multiple Regression, Process Capability with transformed data and an introduction to Design of Experiments.

For those on the Lean Six Sigma Black Belt Programme, this course is followed by Advanced Black Belt Tools.

How can I take this Module?

- Through virtual or face to face classroom training. Classroom delegates have 24 month access to the self-study video materials.
- A series of self-study e-learning video modules to guide you through the content including plenty of opportunities to stop and practise the set examples and also apply the tools and techniques to your own data. The delegates will have 1-1 support from a Catalyst tutor. This is the equivalent of 2 days classroom training.

What Software will You Need?

This is a hands-on course and you will need a copy of Minitab software. You can purchase direct from Minitab or can obtain a free 30 day trial just before training starts. Alternatively, a 6-month licence is available through Catalyst. Many organisations already have Minitab licences. Data sets relevant to multiple environments are provided for the training.



What are the Key Outcomes?

- You will know how to run and interpret Gauge R&R and Gauge Linearity Studies
- We extend regression into multiple regression modelling, assessing model quality, handling multicollinearity and making predictions
- You will build your knowledge of Process Capability and the statistics behind Cp/CpK indices
- An introduction to Design of Experiments

Course Contents

- Measurement Systems Analysis
 - Gauge R&R Study
 - Planning and running the study
 - Analysing the study
 - Gauge R Study
 - Gauge Linearity Study
 - Gauge Stability

- Central Limit Theorem
- Combining distributions
- Box-Cox and data transformation
- Process Capability
 - Cp/CpK with non-normal data
 - Cpm
 - Six Sigma Shift
- Hypothesis Testing review
- Multiple Regression
 - Multicollinearity and VIFs
 - Rsq and Residuals Analysis
 - Model building
 - Factorial plots
 - Prediction
 - Curvilinear Regression
- Introduction to Design of Experiments

Follow-on Options

- Advanced Black Belt Tools
- Lean Six Sigma for Innovation and Design (Design for Lean Six Sigma)