Further Process Measurement and Analysis Techniques

2 days

A two-day course extending your statistical toolset with advanced measurement, regression and capability techniques.

Level up your data analysis. This two-day course extends the statistical toolset you built on Data Driven Insights and Decisions, adding advanced techniques for measurement, modelling and capability. Many are especially relevant to manufacturing and technical environments, and all are taught hands-on so you leave able to apply them with confidence.

Further Process Measurement and Analysis Techniques is a direct follow-on from Data Driven Insights and Decisions, designed for anyone who needs to apply advanced tools to data analysis. It suits engineers, business analysts, quality professionals, scientists and consultants, as well as Green Belts working towards Black Belt. Topics include Gauge R&R studies for continuous data, multiple regression, process capability with transformed data, and an introduction to Design of Experiments. The course is one of the five modules required to complete Black Belt training and is BQF accredited.

What You'll Learn

- By the end of this programme, you will be able to:
- Plan, run and interpret Gauge R&R and Gauge Linearity studies
- Build multiple regression models and assess their quality
- Handle multicollinearity and use models to make reliable predictions
- Apply curvilinear regression and analyse residuals and factorial plots
- Understand process capability and the statistics behind Cp and CpK indices
- Assess capability with non-normal and transformed data
- Apply the foundations of Design of Experiments

Delivery Format

- Virtual Open Classroom options (two-day session via Zoom)
- In-company delivery (on-site or virtual)
- Use of Minitab statistical software
- Available as a standalone module, or could form part of a certification pathway as part of Advanced Green Belt or Lean Six Sigma Black Belt programmes

Accreditation

- Standalone module or part of a recognised certification pathway
- Contributes to Advanced Green Belt or Lean Six Sigma Black Belt certification
- Further Process Measurement and Analysis training is worth 24 CPD points

Who Should Attend?

- Business improvement and transformation professionals looking to strengthen data-driven decision making to a more advanced level
- Those working with process or operational data who need to interpret, analyse and apply insights effectively
- Participants on Business Black Belt or Lean Six Sigma Black Belt programmes

Why Choose This Course?

Practitioners choose this course to extend their statistical capability with techniques that genuinely add value in technical and manufacturing settings. It bridges intermediate training and Black Belt, forming one of the five modules required for Black Belt certification. The hands-on approach, with relevant datasets and Minitab practice, ensures delegates can apply each technique immediately rather than simply understand it in theory.

Course Content

This module goes deeper into the statistical foundations of Lean Six Sigma. You'll conduct full Measurement Systems Analysis including Gauge R&R, Gauge Linearity and Stability studies, and explore advanced capability measures such as Pp/PpK, Z.bench and Cpm. Six Sigma measures including DPU, DPMO and Sigma Score are covered in full, alongside advanced regression techniques: model building, multicollinearity, curvilinear and categorical predictors, and data transformation. The module concludes with an introduction to Design of Experiments.

Further Process Measurement and Analysis Techniques Content

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

Central Limit Theorem

Combining distributions

Box-Cox and data transformation

Process Capability
- Cp/CpK with non-normal data
- Pp/PpK
- Z.bench

Process Capability Cont'd
- Cpm
- Six Sigma Score and Sigma Shift (Method 2)

Six Sigma Measures
- DPU
- DPMO and establishing Opportunities
- Sigma Score (Method 1)

Multiple Regression
- Multicollinearity and VIFs
- Rsq and Residuals Analysis
- Model building
- Factorial plots
- Prediction
- Curvilinear Regression
- Adding categorical predictors
- Transforming to improve the model

Introduction to Design of Experiments

Why Choose Catalyst?

Catalyst delivers results, not just services. We blend consulting, coaching, training, and AI-powered tools into a seamless support system that meets teams where they are, developing capability at every level.

Thousands trust us to support their learning and Continuous Improvement journeys – we've specialised in Lean Six Sigma Training and Consultancy for over 30 years. We're known for sharing our knowledge in an accessible and interactive way. Look no further for relevant, relatable content, built by experts and accredited by the British Quality Foundation and the Lean Competency System (LCS). We are the BQF's primary Lean Six Sigma partner and recommended by the Chartered Quality Institute.