

Measurement Systems Analysis (MSA) 1 or 2 days

Trust your data before you act on it.

Can you rely on the data and analysis your decisions depend on? Measurement Systems Analysis (MSA) is a structured way to assess the accuracy, precision and stability of your measurement systems, so your measurements, and the decisions based on them, can be trusted.

Errors and variation from the measurement system can undermine even the best improvement activities. Measurement Systems Analysis assesses how much of the observed variation comes from the measurement process itself, rather than the process that is being measured. It helps ensure that processes are measured and managed, and decisions are made, using accurate, consistent data. The approach applies beyond manufacturing: decisions and judgements in transactional and service processes rely on measurement too.

This practical programme provides the skills to design, conduct and interpret measurement system studies, evaluating accuracy, precision and stability, running Gauge Repeatability and Reproducibility (Gauge R&R) and Attribute Agreement Analysis studies, and rectifying common measurement errors.

What You'll Learn

By the end of this programme, you will be able to:

- Understand essential MSA concepts, principles and terminology
- Understand the sources of variation in measurement systems: accuracy, precision and stability
- Design, plan and facilitate a measurement system study
- Conduct and interpret Gauge R&R and Attribute Agreement Analysis studies
- Apply MSA to more challenging measurement scenarios, such as destructive testing
- Identify and rectify common measurement errors, and integrate MSA within quality management systems

Delivery Format

The programme is delivered in-company, either virtually or face-to-face, and can be tailored to align with industry or in-house standards (such as the automotive industry's AIAG guidelines) and software. Practitioner training runs over one or two days, depending on the scope of methods to be covered; for international or virtual delivery, the format can be a series of half-day sessions spread over one or more weeks.

Who Should Attend?

This programme is practitioner level and suitable for anyone involved in facilitating or participating in measurement system studies, including:

- Manufacturing engineers responsible for measurement equipment and processes
- Quality professionals ensuring the integrity and validity of collected data

- Continuous improvement practitioners such as Lean Six Sigma belts
- Anyone whose decisions depend on reliable measurement data (no prerequisites required, though basic numeracy is necessary)

Why Choose This Course?

Participants gain:

- A structured method for assessing the accuracy, precision and stability of measurement systems
- Confidence that decisions and process controls are based on trustworthy data
- The ability to conduct and interpret Gauge R&R and Attribute Agreement Analysis studies
- Practical skills to identify and rectify common measurement errors
- Improved process efficiency, product quality and reliability
- 8 CPD points to support professional development

Course Content

This course introduces the fundamentals of Measurement Systems Analysis (MSA), including its role in guaranteeing the integrity and validity of collected data. Participants learn how to design, conduct and interpret measurement system studies using a range of practical tools and techniques, including:

- MSA fundamentals: core concepts, terminology and considerations
- Understanding sources of measurement system variation
- Understanding different measurement systems and their attributes
- Planning a measurement system study, from Type 1 gauge studies to full Gauge R&R
- Evaluating accuracy, precision and stability, including bias, linearity and calibration
- Gauge R&R and Attribute Agreement Analysis: conducting studies and interpreting results
- Crossed and Nested Studies (Nested Studies may be required in circumstances such as destructive testing)
- Recognising and rectifying common measurement errors
- Reporting outcomes, integration with quality management systems and action planning

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. With over 35 years' experience in performance improvement training and consultancy, we make complex concepts practical, accessible, and engaging. Our short courses in quality and improvement tools are designed by experienced practitioners, ensuring content that is relevant and immediately applicable. We combine deep expertise with interactive delivery to help participants confidently apply what they learn. Catalyst is accredited by the British Quality Foundation and the Lean Competency System (LCS), and is recommended by the Chartered Quality Institute.