

**MEASUREMENT SYSTEMS ANALYSIS (MSA)
Using Minitab Software
One-day workshop**

1. MSA and Minitab

A measurement systems analysis evaluates the test method, measuring instruments, and the entire process of obtaining measurements. The purpose is to ensure the integrity of data used for analysis and to understand the implications of measurement error in decisions made about a product or process. MSA is often referred to as Gauge R&R (meaning repeatability and reproducibility)

Minitab® Statistical Software is a world leader in data analysis applications and particularly popular in Irish-based companies (see <http://www.minitab.co.uk>). Lean Ireland consultants are experienced in the training and coaching of personnel from a wide variety of sectors, in the use of Minitab for the statistical measurement, analysis and control of process problems.

2. Learning Objective and Deliverables

At the end of the course attendees will be enabled to:

- Understand characteristics of the various data types
- Design a robust data collection methodology
- Select and standardise an appropriate measurement system for the process/variables being measured
- Select the appropriate gauge R&R method for the type of product test being evaluated
- Understand the importance of regular Gauge R&R review.

The course is case study based. Lean Ireland will supply 5 laptops with Minitab, and personnel will work in pairs at each laptop.

3. Agenda

Time	Content
08.30am	Introductions
	Introduction to metrology and international measurement standards <ul style="list-style-type: none"> - Measurement definitions & challenges with measurement systems
	Data types & data collection
	Measurement systems analysis (MSA) with attribute data <ul style="list-style-type: none"> - designing the Gauge R&R exercise - attribute data exercise with Excel sheets - repeatability & reproducibility - attribute data exercise with Minitab - practical challenges with attribute data MSA with variable data <ul style="list-style-type: none"> - designing the Gauge R&R exercise
12.30pm	Lunch
13.15pm	MSA with variable data (cont'd) <ul style="list-style-type: none"> - variable data exercise with Excel - variable data analysis with Minitab - interpreting the results or how good is good enough?
	MSA programme management
04.30pm	Review & Close

4. Who should attend?

The course is designed for personnel in quality and engineering functions who are regularly involved in assessing the suitability of measurements systems. Successful measurement system design is essential for robust decision making in design, validation and manufacturing. A maximum of 10 candidates can be accommodated on the course.

5. Contact

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