

MEASUREMENT SYSTEM ANALYSIS (MSA)

Introduction:

Measurement System Analysis (MSA) includes various techniques to assess the performance of a manufacturer's measurement system. Essentially, MSA calls for an experiment to locate any variation in a measurement process. Measurement processes include several measures, such as gages or software, and a variety of sources for potential variation, such as personnel and environmental factors. The experiment conducted during the MSA will evaluate each aspect of the process, including the test method, any measuring instruments used in the process, and every technique used to obtain measurements.

The goal of the measurement system analysis is to preserve the integrity of both the data collection as well as the data itself. Incorporating MSA in six sigma methodology and quality management is critical for proper data analysis and future decision making. With the knowledge the analysis provides, companies are better informed on the implications for any measurement error, which drives decisions about individual products and processes.

Course Objectives:

At end of the 2 days workshop, participants will be able to:

- Explain the purpose & application of MSA.
- Develop test procedures, prepare for measurement system study and analyse the results for both location/width errors.
- Conduct Variable/Attribute Measurement System Study to determine Stability, Bias, Linearity and Repeatability & Reproducibility.
- Use Standard GRR Study to conduct the measurement system analysis study & interpret its result.

Course Contents:

1.0 Introduction to MSA

- 1.1 Purpose of Measurement System Analysis
- 1.2 Linkage to IATF 16949:2016
- 1.3 Application Guidelines
- 1.4 Terminology/Discrimination

2.0 Process Variations

- 2.1 Sources of Process Variation
- 2.2 Types of Measurement System Variation
- 2.3 Summary of Measurement System Variation

3.0 Variable Gauge Study

- 3.1 Average and Range Method
- 3.2 Graphical Analysis
- 3.3 Range Method
- 3.4 Method for Non Replicable Measurement System
- 3.5 Summary of Gauge R&R Process

4.0 Attribute Gauge Study

- 4.1 Risk Analysis Method
- 4.2 Hypothesis Test Analysis
- 4.3 KAPPA

5.0 Analysis of Variance (ANOVA) method (using Minitab)

6.0 Case Studies and industry Real Case Applications

Who Should Attend:

Manufacturing QA Engineers, Product & Process Engineers, Test Engineers, Design Engineers, Calibration and Maintenance Personnel, Quality Professionals, Supervisors, Environmental Laboratory Managers, Laboratory and Technical Personnel, Inspectors, Technicians, Internal Auditors, SPC coordinators and Suppliers. This course is also designed for those who are involved in the development and implementation of the Measurement System Analysis as part of their quality assurance and improvement program, particularly within the ISO 9001, IATF 16949 or other applicable Standard's framework.

Award of Certificate:

Participants will be issued with a Certificate of Successful Completion upon meeting 75% of the required course attendance.

Duration:

2 days (14 hours)



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Course Fee:

\$550 nett per trainee (GST is not applicable).

(Course fee is inclusive of all training materials and light refreshments.)