MEASUREMENT SYSTEM ANALYSIS (MSA)

Measurement System Analysis (MSA) is the collection of operations, procedures, gages and other equipment, software and personnel used to assign a number to the characteristic being measured; the complete process used to obtain a measurement.
There are five MSA parameters, group into two types of variation in the MSA:

- location variation:Bias, Stability&Linearity and
- Width variation: Repeatability and Reproducibility.

LEARNING OBJECTIVE

After seriously committed to this course, the trainee should be able to do the following:

- Get to know the measurement system concepts.
- Understand the principal concepts on measurement and calibration.
- Known type of measurement errors and precaution about these errors.
- Understand metrological requirements when make a measurement.
- Know the common sources of measurement system variation
- Identify MSA parameters in a measurement system.
- Conduct analysis on variation characteristics for the measurement system such as linearity, stability, repeatability, and reproducibility.
- Perform Gauge R&R studies for attribute measurements and Range method for variable data.
- Use both graphical and mathematical techniques to evaluate gauge variation characteristics.
- Interpret and Justify the measurement system analysis results and to decide on further action

TARGETED INDUSTRIES

The Calibration Laboratories, University, Institutions and the industries involve in calibration or measurements are part of their activity and/or register with ISO 9001, IATF 16949..

TARGET GROUP

Any individual involving Metrology, or anyone supporting the functions of measurement and calibration labs and all persons at any level using measurement instruments. This can include managers, technicians, engineers, inspectors, operators, lecturers, administrative support personnel etc., who are involved throughout the development and implementation of the MSA as part of their quality assurance and improvement program, particularly within the ISO 9001, IATF 16949, and it also can serve as a refresher for experienced technicians; alternatively, it can be used in orientation for new hires.
*Participants must have knowledge in statistics and probability distribution, comfortable using scientific calculator and simple algebra formulas.

METHODOLOGY& LANGUAGE USE

Training slides, Training Material, Review Questions, Exercises, Case Study,Instruments demo, Q&A.
Test Before &After Training.
Training Manual – English
Course deliver language – Can be mix of English, Bahasa Malaysia and Chinese

COURSE OUTLINE

- Measurement Concept
- Measurement Accuracy
- Managing Measurement Systems
- Basic Statistical Use in Measurement System Analysis
- Application of Measurement
- Measurement System Parameters
- Accuracy (Bias) Analysis (Location Variation)
- Precision Analysis (Width Variation)
- Gauge Repeatability and Reproducibility Study for Attributes Data