



Quality-One International

Measurement System Analysis (MSA) Course Outline

- Introduction to Measurement System Analysis (MSA)
- Principals of MSA
 - Confidence in Measurement Outcome
- Calibration to Standards
 - Hierarchy of Standards and Calibration
 - Frequency of Calibration
 - Gage Use Environments and Effect on Calibration
- Calibration Terms
 - Bias
 - Stability
 - Linearity
 - Sensitivity
 - Uniformity
- Resolution of the Gage for Use
 - 10 times rule
- Relationship of MSA to Statistical Process Control (SPC)
 - Uncertainty of Measurement
 - Impact on Capability (Cpk and Ppk)
- Gage Studies and Evaluation Techniques
- Variables Gage Techniques
 - Gage Repeatability
 - Gage Reproducibility
 - Long Method
 - Short Method
 - Control Chart Method
- Acceptance Criteria for Variables Gage Methods
 - % of Tolerance
 - % of Variation
- Attribute Gage Evaluation Technique