



CONTINUING EDUCATION

Measurement System Assessment II (MSA II)

CEQAL 511

Non-typical measurement systems require more advanced measurement system techniques. This seminar provides participants to the knowledge necessary to perform measurement system assessments for destructive testing, nested systems and other advanced or non-standard situations. It also provides enhanced understanding and utility of core measurement assessment tools taught in MSA I.

Who Should attend: Practitioners involved in the evaluation of measurement systems and any individual making decisions based on data.

Prerequisite: A knowledge of basic algebra, statistical process control concepts (SPC I) and basic measurement system concepts (MSA I) is strongly recommended.

CEU'S Credits: 1.6

Duration: 16 Hours – 2-day course

Course Content:

- Introduction**
 - Measurement System Assessment Overview
- Review of the Gage R & R Study**
 - Estimating Repeatability and Reproducibility
 - Using the Standard Forms
- Understanding Components of Variation**
 - Analysis of Variance (ANOVA) Approach to Gage R & R
 - Models Involving System/Specimen Interactions
 - Handling Negative Variance Estimates
 - Interpretation Using Confidence Intervals
 - Understanding “Within Part” Variation

Application of ANOVA to Special Situations

- More Than Three Measurement Systems
- No Repeated Measurements by a System
- When Measurement Systems Cannot Evaluate Every Specimen in the Study (Nesting)
- Attributing Two or More Factors to Reproducibility

Destructive Testing

- Incorporating Surrogate Parts
- Using Multiple Locations
- Fitting a Curve to Time Variant Values

Studies Involving a Reference Measurement System

- Intra-Class Correlation
- The Discrimination Ratio
- Developing Confidence Limits for the True Value

Modeling the Attribute Gage System

Each participant will receive a comprehensive manual and a Certificate of Completion at the close of the seminar.