Midlands Technical College
CONTINUING EDUCATION

Statistical Analysis for Process Improvement

CEQAL 518

Statistical analysis is a key to understanding processes and driving process improvement. This course allows participants to understand and use statistical tools utilized by process improvement experts to drive enhancements in quality and productivity. Microsoft Excel™ is used extensively to aid participants in improving the speed and efficiency of their analyses. Industrial process case studies and examples are used extensively throughout the course.

Who Should attend: Individuals involved with analysis of process data underlying quality and productivity improvement.

Prerequisite: A knowledge of basic algebra and Microsoft Excel™is highly recommended. Computer analysis using Microsoft Excel™ will be emphasized.

CEU's Credits: 3.2

Duration: 32 Hours – 4-day course

Course Content:

Understanding a Single Process

- Estimating the Center and Spread
- Confidence Intervals for the Mean, Variance and Proportion
- Testing a Hypothesized Mean, Variance and Proportion
- Errors of Type I and II
- Sample Size Considerations
- Assessing Differences Between Two Gauging Points

Assessing Differences Between Two Parallel Processes

- Graphical Techniques
- Differences in Means
  - Student's t Test
- Differences in Variation
  - F Test
- Differences in Proportion

Assessing Differences Among More Than Two Parallel Process

- Differences Between Means
  - Analysis of Variance
- Differences in Variation
- Differences in Proportion

Relating Two Variables (Using an Input Variable to Predict an Output Variable)

- Correlation
- Fitting a Line
- Residual Analysis
- Predicting the Output at a Given Level of the Input
- Confidence and Prediction Intervals

Relating More Than Two Variables (Using More Than One Input Variable to Predict an Output Variable)

- Building the Regression Model
- Residual Analysis
- Confidence and Prediction Intervals for Regression Models

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