



CONTINUING EDUCATION

Design of Experiments (DOE I)

CEQAL 520

Design experiments are an extremely powerful tool used to optimize processes. Learn how to utilize sequential experimentation to make your processes as efficient as they can be. Experimental selection, design, conduct and analysis are covered and reinforced through an actual DOE workshop.

Who Should Attend: Individuals who wish to identify and manage important process variables as well as their effect on quality and productivity improvement.

Prerequisite: Knowledge of basic algebra is highly recommended. A familiarity with SPC concepts (SPC I) will prove helpful.

CEU's Credit: 3.2

Duration: 32 Hours – 4-day course

Course Content:

Experimental Design Concepts

- DOE and the Continuous Improvement Strategy
- Anatomy of an Experiment
- Principles of Conduct

Two-Level Full Factorial Experiments

- Two-Level Factorial Designs
- Conduct of the Experiment
- Analysis of Two-Level Factorial Experiments
- Catalog of Factorial Designs
- Using the Design and Analysis Worksheets

Getting Started with Experimental Design

- The DOE Process
- Clarifying the Problem
- Choosing the Factors and Levels
- Anticipating the Analysis
- Preparing for Communication of results

Judging the Importance of Effects

- Location Effects

- Sample Size Determination
- Variance Effects
 - Sample Size Determination
- Proportion Effects
 - Sample Size Determination

Model Development

- Model Building
- Model Checking

Two-Level Fractional Factorial Designs

- Fractional Factorial Experiments
- Confounding of Effects
- Resolution of Designs
- Analyzing Fractional Factorial Experiments
- Catalog of Designs

Screening Designs

- Plackett-Burman Designs
- Taguchi Designs
- Combining Fractional Experiments of Improve Resolution

Group Experiment Project

- Choosing Factors
- Setting Up Levels
- Choosing the Design
- Analysis and “Optimization”

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