Overview of Statistical Methods for Problem Solving and Product/Process Optimization
On-line Training Program – May 4-20, 2015

This 18-hour, online interactive course provides an overview of key quantitative methods for problem solving, process improvement, and process optimization. The course is organized into three 6-hour modules over a period of 3 weeks. Each session will be recorded and will be available for class participants who miss a session.

• Week 1: Measurement & Process Control (Mon/Tues/Wed 12:00 pm – 2 pm EST)
• Week 2: Design of Experiments (Mon/Tues/Wed 12:00 pm – 2 pm EST)
• Week 3: Data Analysis (Mon/Tues/Wed 12:00 pm – 2 pm EST)

Key concepts behind each method are introduced along with example applications. The focus is on the application of the methods rather than in depth theoretical treatment. Participants will be encouraged to participate via the many interactive tools within the Adobe Connect environment. Participants will also have the opportunity to practice with sample datasets that will be provided.

This course will be a useful refresher for many of the statistical methods covered in previous courses (corporate or university). It will also serve as a comprehensive introduction to methods that are indispensable for process and product optimization and problem solving.

Course Objective
Provide a comprehensive yet concise overview of essential statistical methods for product and process development and problem solving via a flexible and cost effective delivery format.

Target Audience (Who will Benefit by Attending)
• Design Engineers
• Manufacturing Engineers
• Process Engineers
• Quality Engineers
• Product Testing Personnel
• Product Development Personnel
• Plant Operations Personnel
• Reliability Engineers
• Engineering Management
• Supplier Quality Personnel
• Laboratory Personnel
• Program Managers
• Six Sigma Green Belts or Black Belts

Benefits
Participants will gain or refresh crucial knowledge that facilitates:
• Efforts to improve quality by understanding and reducing variation in key process/product characteristics
• Ensuring that measurement systems are capable of providing useful data for action
• The estimation of process capability for normal and non-normal Data
• The use of efficient experiments for process/product optimization and problem solving
• The development of predictive models to describe process performance and optimize outcomes
• Application of hypothesis testing to compare groups, identify sources of variation, confirm impacts of process changes, and support decision making
• The utilization of graphical and statistical methods to understand and model relationships between variables (for root cause analysis, process control, etc.)
Course Topics

Week #1 – Measurement & Process Control

- Fundamentals of Variation
- Quality Control vs. Process Control
- Basic Statistics
- Traditional Control Charts (Variable Data)
- Process Capability Assessment
- Measurement Systems Assessment
- Gage R&R

Week #2 – Design of Experiments

- Introduction to Experimental Design
- Two Level Factorial Designs
- Main & Interaction Effects
- Developing Mathematical Models
- Optimizing Responses
- Validating Models
- Fractional Factorial Designs (Screening)
- Variance Responses
- Intro to Response Surface Designs

Week #3 - Data Analysis

- Graphical Methods
- Hypothesis Testing Concepts
- Hypothesis Testing for Means, Proportions, Variances
- Estimation & Confidence Intervals
- Power and Sample Size for Hypothesis Testing
- Equivalence Testing
- Regression Modeling

Requirements:

Minitab Software (Version 17) will be used by the instructor. Although not required, participants are encouraged to have Minitab available to work through in class examples and perform (optional) exercises in between class sessions.

Included in Course Fee:

- 18 hours of on-line, interactive training
- Access to recorded sessions
- Electronic version of presented slide material (PDF)
- 4 electronic textbooks covering the course topics in depth
- 1 hour of consulting support (to be scheduled with instructor, if all 3 weeks attended)

Costs:

- Course Fee is $1295 per person (for all 3 weeks)
- Participants can register for a single week for $495 per person
- 3+ participants from the same company are entitled to a 10% discount
- 5+ participants from the same company are entitled to a 20% discount

Registration or More Information:

Please send an email to steve@integral-concepts.com or contact Steve Wachs at 248-884-2276. A link to an on-line registration form will be sent to you.