STATISTICAL PROCESS CONTROL

COURSE OUTLINE

Objective

To provide a training course designed to allow key members of the company to understand and implement SPC techniques in the workplace. The course focuses on company specific processes, and is designed for operators, engineers, managers, supervisors, etc… A Certificate of Completion is awarded to each participant completing the course.

I. Fundamentals of SPC, Continuous Improvement Philosophy, Theory of Variation, Speaking with Data, Teamwork

1. Purpose of SPC / "What's in it for me?" / Benefits of SPC
2. Process Mapping
3. Selecting Key Characteristics
4. Control Plans
5. Team approach to Process Control using SPC

II. Introduction to SPC Control Charts

1. Control Chart Theory
2. Xbar and R Charts
3. Basic Statistics
4. Interpretation
   A. Collect data from your process and develop a Control Chart
   B. Interpret the chart (per criteria discussed in class) and identify opportunities for improvement
   C. Collect data from your process using a Checksheet and develop a Pareto chart
   D. Interpret the chart (per criteria discussed in class) and identify opportunities for improvement

III. SPC Control Charts

1. Variables Control Chart
2. Attributes Control Chart
   A. Collect data from your process and develop an Attribute Control Chart
   B. Interpret the chart (per criteria discussed in class) and identify opportunities for improvement
   C. Process FMEA (Failure Mode & Effects Analysis)
   D. Acc's & Cac's (Assignable Causes and Corrective Actions)
   E. OCAPS (Out of Control Action Plans)

IV. Interpretation of Control Charts

1. Variables Control Charts
2. Range Chart
3. Xbar and R Charts

V. Process Capability

1. Performing a Process Capability Study, Histograms

2. Process Capability of Key Characteristics
3. Understanding Cp, CpK and Process Yield, Confidence Intervals
   A. Collect data from your process and perform a Process Capability Study

VI. Attribute Charts
1. The p Chart
2. The np Chart
3. The c Chart

VII. Short Run SPC Control Charts
1. Xi-Mr Control Charts
2. Target Control Charts (Attributes and Variables)
   A. Collect data from your process and develop a Short Run SPC Chart
   B. Interpret the chart (per criteria discussed in class) and identify opportunities for improvement

VIII. Gage R & R Studies
1. Perform a Gage R & R Study

Activities: Course activities include: Catapult Variation Team exercise, M & M's SPC exercise,
Normal Distribution simulation, Variability reduction exercise using actual company parts.

Deliverables: SPC Implemented at each planned workstation
SPC Implemented as a monitor (at supervisors work station)
Out of Control Action Plans (OCAPS)
Complete Understanding of SPC throughout the areas implemented