TECH PREP/MTAG CURRICULUM Statistical Process Control

Lesson Plan

Time Allotment:	7 hours
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MODULE DESCRIPTION

This module provides an overview of Statistical Process Control, showing the value of collecting and analyzing data that enables people to systematically analyze and improve a process. Students will participate in generating and analyzing the data, and then describe what the data shows.

MODULE OBJECTIVE

After completing this module, students should be able to construct and interpret different statistical charts in order to evaluate a process.

MTAG COMPETENCIES INTRODUCED

D4.1 Define SPC

- D5.2 Analyze and interpret test data for compliance to specifications
- D5.3 Correct production processes when indicated by analysis of data
- I2.3 Collect and analyze information to determine and improve work processes

MANUFACTURING SKILL STANDARDS (MSSC) INTRODUCED

- P8 Quality Tools and Statistical Systems: B. Knowledge of statistics for making accurate decisions about quality data.
- P8 Quality Tools and Statistical Systems: D. Knowledge of how to create charts (e.g. variables and attributes) to record and analyze quality measurements from a production process o identify root causes and recommendations.

PERFORMANCE CRITERIA

- Students will state the purpose of SPC and seven different statistical tools.
- Students create statistical charts and describe what these charts show about a process.
- Students will be able to generate hypotheses that have the potential for identifying and eliminating the root cause of problems.
- Students will be able to generate control charts and make improvement recommendations to a process.

SEQUENCING

Introduction What is Statistical Process Control? Samples and populations M&M's Exercise Collecting data Creating the run chart Interpreting the run chart Common and special cause variation Looking at variation – histograms Plotting a histogram Debrief the exercise Penny Pitching Exercise Introduce the penny-pitching exercise Demonstrate the exercise Students create their own data Students plot their own data Demonstrate how to do a presentation Student Presentations Debriefing Process capability Skill check Module Evaluation

EQUIPMENT AND SUPPLIES NEEDED

Overhead projector and screen 3 transparencies and transparency pens for each student White board and erasable markers/chalk 1 package of M&Ms for each student Approximately 240 pennies for tossing, 4 paper cups to hold the pennies 4 1-yard square pieces of felt, marked every other inch from -17 inches to + 17 inches, with a thicker line at 0 to function as an aiming point OR Measuring tape & Masking tape

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RECOMMENDED STUDENT PREREQUISITES

Completed the following modules: Interpersonal Effectiveness, Introduction to Manufacturing