STATISTICAL PROCESS CONTROL (SPC) BASICS

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Credit Hours

Variations are inherent to a process. An organization should effectively employ statistical process control measures to reduce variations and eliminate nonconformance. This course offers a comprehensive overview of the basic statistical concepts, such as a process control system, process measures, control chart structure, and process capability. This course, presented in a visually engaging and highly interactive format, gauges your mind for a broader understanding of SPC.

Learning Objectives

- Recall the basic elements of a process control system.
- Define the process measures for variable data and attribute data.
- Interpret the graphical representation of data points in statistical distribution.
- Identify the elements of a control chart.
- **(**): Interpret the relationship between specification limits and control limits for process capability.
- Analyze process capability through process capability indices and process performance indices.

Table of Contents

I. Basic Statistical Concepts

- Process Control System
 - Process
 - Variations
 - Sources
 - Principles
 - Types
 - Actions
 - Local Actions
 - Actions on the System
- Process Measures
 - Process Measures for Variable Data
 - Measures of Central Tendency

I. Basic Statistical Concepts (continued)

- Measures of Dispersion
- Process Measures for Attribute Data
 - Percentage Defective (P)
 - Defects Per Unit (DPU)
- Statistical Distribution
- Control Chart Structure
 - Chart Elements
 - Subgroup
 - Patterns Evaluation

II. Process Capability

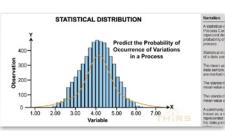
- Process Capability Prerequisites
- Initial Process Studies

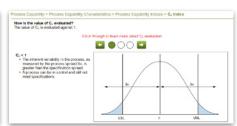
II. Process Capability (continued)

- Process Capability Analysis
 - Specification Limits and Control Limits
 - Specification Limits-Control Limits Relationship
 - Control Limits Less than Specification Limits
 - Control Limits Equal to Specification Limits
 - Control Limits Greater than Specification Limits
- Process Capability Characteristics
- Process Capability Indices
 - C Index
 - C_{pk} Index
- Parts Per Million (PPM)
- Process Performance

 - □ P_p Index□ P_{pk} Index







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