

"Statistical Process Control (SPC)"

Training Overview

This course equips professionals with the ability to monitor, control, and improve processes using statistical tools, focusing on real-world application rather than theory-heavy statistics.

SPC is fundamentally about detecting variation early and preventing defects instead of correcting them later.

Training Objectives

By the end, participants will:

- Understand process variation (common vs special causes)
- Build and interpret control charts
- Calculate process capability (C_p , C_{pk})
- Use SPC tools in real operational scenarios
- Make data-driven decisions for process improvement

Training Audience

- Operations Managers

- Quality Engineers
- Process Improvement Teams
- Manufacturing / Service Operations Staff

Training Methodology

- Excel / Minitab practice
- Case studies (real production/service data)
- Control chart simulations
- Group problem-solving
- Gamification
- “Out of Control” detection game
- Control chart competition (teams interpret fastest & correct)

Day-by-Day Outline

Day 1: Foundations of SPC

- Quality evolution (inspection → prevention)

- Types of data (variable vs attribute)
- Basic statistics (mean, median, variation, SD)
- Understanding variation (common vs special causes)

Day 2: Control Charts (Core of SPC)

- What is statistical control
- Types of control charts:
- X-bar & R
- X-bar & S
- Attribute charts (P, C, U)
- Control limits (UCL/LCL)
- Signals of out-of-control processes

Day 3: Process Capability & Application

- Cp, Cpk, Pp, Ppk
- Stability vs capability
- Case study: production line improvement

- Using SPC in non-manufacturing (services, HR, IT)

KOENIG
step forward