Implementing Statistical Process Control (SPC) for Process Improvement Training Course



19 - 23 Oct 2026

Berlin

5800 € (Per Person)

Ref: #QUA3504_64513

Course Introduction / Overview:

In a world of complex processes, Statistical Process Control (SPC) is not just a tool for quality control but a powerful methodology for achieving process improvement and operational excellence. This training course is designed to provide professionals, engineers, and analysts with the framework and practical skills to implement SPC to monitor, control, and improve their processes. It goes beyond a simple focus on charts and data points to explore how SPC can be used to understand process variation, distinguish between common and special causes, and make data-driven decisions that lead to sustainable gains. We will explore how to select the right control chart for a given process, collect and analyze data, and interpret chart patterns to identify opportunities for improvement. The curriculum is informed by the foundational work of global academics like Walter A. Shewhart, whose book "Economic Control of Quality of Manufactured Product" laid the groundwork for modern quality control. His work on the control chart is the bedrock of this program. This program provides a clear blueprint for turning a complex process into a stable, predictable, and highly efficient operation. BIG BEN Training Center is committed to empowering professionals to achieve process excellence through the power of data.

Target Audience / This training course is suitable for:

- Quality engineers and analysts.
- Manufacturing and production supervisors.
- Process improvement specialists.
- Operations managers.
- Data analysts.
- Engineers.
- Auditors.

Target Sectors and Industries:

- Manufacturing and engineering.
- Healthcare and pharmaceuticals.
- Financial services.
- Aerospace and defense.
- Food and beverage processing.
- Technology and software.
- Government agencies and public services.

Target Organizations Departments:

- Quality Assurance.
- Operations and manufacturing.
- Engineering.
- Process Improvement.
- Data Analytics.
- Supply Chain.
- Research and Development (R&D).

Course Offerings:

By the end of this course, the participants will have able to:

- Select the appropriate control chart for a given process.
- Understand and apply the principles of process variation.
- Interpret SPC charts to identify out-of-control conditions.
- Use SPC to make data-driven decisions.
- Implement an SPC system in their organization.
- Communicate SPC findings to stakeholders.
- Distinguish between common and special causes.
- Develop a personal plan for applying SPC in their work.

Course Methodology:

This training course uses a highly interactive and case-based methodology to ensure participants gain actionable skills in Statistical Process Control. The program incorporates detailed case studies of processes from various industries, demonstrating how SPC can be used to prevent defects and improve performance. We will use interactive workshops and data analysis exercises to practice critical skills like creating a control chart, performing a process capability analysis, and interpreting chart patterns to identify root causes. The course includes a hands-on group project where participants will work together to analyze a real-world dataset and create a full SPC report. BIG BEN Training Center believes that hands-on training is essential for mastering these new ways of working. Our expert facilitators will guide discussions and provide personalized feedback, ensuring that participants leave with the confidence and practical experience needed to lead a process improvement initiative.

Course Agenda (Course Units):

Unit One: Foundations of Statistical Process Control

- The history and purpose of SPC.
- Understanding process variation (common vs. special causes).
- The Shewhart cycle.
- Introduction to the different types of control charts.
- The business case for SPC.

Unit Two: Control Charts for Variable Data

- The X-bar and R chart.
- The X-bar and S chart.
- Developing a data collection plan.
- Calculating control limits.
- Interpreting control chart patterns.

Unit Three: Control Charts for Attribute Data

- The p-chart and np-chart.
- The c-chart and u-chart.
- Using attribute charts in services.
- Selecting the right chart for the data.
- Handling varying subgroup sizes.

Unit Four: Process Capability and Performance

- Understanding process capability (Cp, Cpk, Pp, Ppk).
- The relationship between control and capability.
- Analyzing a process for capability.
- Short-term vs. long-term performance.
- Using capability analysis to drive decisions.

Unit Five: Implementing and Sustaining SPC

- Steps for implementing an SPC system.
- Integrating SPC with other improvement methodologies.
- The role of software and technology.
- Sustaining the gains from SPC.
- Developing a personal action plan.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

How can organizations, which often rely on reactive quality control, successfully transition to a proactive, data-driven approach using SPC to prevent issues before they occur?

What unique qualities does this course offer compared to other courses?

This training course is a highly specialized program that focuses on the practical application of Statistical Process Control, which sets it apart from more theoretical or academic courses. We go beyond a simple focus on formulas to provide a holistic framework for using SPC as a powerful tool for process improvement. Our curriculum is tailored to address the specific needs of professionals who need to make data-driven decisions, providing them with the frameworks to not just analyze data but to act on the insights. The course distinguishes itself by emphasizing not only the technical skills needed to create a control chart but also the strategic and leadership skills required to influence a process improvement mindset across an organization. By focusing on both the practical and the strategic aspects of SPC, this program provides an invaluable skill set that is essential for any professional committed to a career in quality or operations.